

NEW INTERPRETATIONS
ON
INDUS VALLEY CIVILISATION

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DEDICATION

He not only guided me like the North Star,
but he was the boat, on which I sailed;
and crossed the sea of life.
She was not only the paddle,
which helped me through the ocean;
but she was the life jacket,
which assured me that
I was not alone in this world.

This book is dedicated to my father, Late Shri Ramasamy, who had inspired me to take up the civil service job. His suggestion that study of history is an integral part of civil service examination had resulted in my eternal love for this subject. He had also opened my eyes to a never-ending source of literature, which has become my hobby as well as the guiding lamp in my life. In addition to that, this book is further dedicated to my mother, Late Smt. Andal, who had nursed her hopes on our success in life through education and sustained it with lots of sacrifice throughout her life.

ACKNOWLEDGEMENTS

It is important that a proper acknowledgement is written after completion of the book. Earlier, I used to find it amusing the way authors used to make praises of their wives and family members for their support and patient bearing of the difficulties. Now, after attaining maturity on the ways of life and the experience of writing a book; I realise that writing a book is a long term effort and it materialises because of proper understanding among family members. I am grateful to my wife Shobana for patiently listening to my new theories and ideas on Indus culture. She also helped me by teaching, 'how to handle the MS-Word programme'. My thanks are due to my daughter Krishna Priya for helping me out through various intricacies of GIMP-2 programme (Image manipulation programme). I am highly indebted to all my family members who had been helpful to me in numerous ways, which will need lot of space and time to list out. If I start narrating their help and my indebtedness to them, major portion of this book will go towards writing my family history. Hence I restrict myself with the statement that without the love and affection of my family members this work could not have succeeded at all.

I am highly indebted to shri A.Selvaraj IRS (Rtd. CCIT) and shri M.Ravi IPS; for their lifelong support and their moral support during this period. I am equally grateful to shri R.C. Mishra IRS for his silent support, and policy of allowing freedom of expression. I am thankful to Shri Balachandran and Shri Bharathi Bhaskaran for their editing work of this book, without which it could not be published in this short time schedule. I am thankful to Shri Srinivasan, for his timely help in correcting the manuscripts, and patiently listening to various theories of mine on Indus valley Civilisation.

The other most important help I have taken is from Wikipedia, the free encyclopaedia. Major portion of the basic facts are from Wikipedia and I found that this it was exceedingly helpful in presenting facts and stitching together many facts on basic issues. If at all any mistakes in basic facts are there, they may be due to the inaccuracies in Wikipedia. But generally I find that facts are properly presented and internet vandals have not taken an upper hand on Wikipedia.

Next in order is GIMP-2 programme. It is again a free programme from GNOME project, and all the figures in this book are drawn using this image manipulation programme. The figures in this book make it lively and easy to understand. My heartfelt thanks are due to these noble personalities who have developed and sustaining Wikipedia and GIMP programme. Without these facilities this book would have died down in the conception stage itself.

PREFACE

Before going into the nitty-gritty of this book, it is important to introduce myself and my credentials to write on this topic. I did my graduation in the subject of Agriculture at Annamalai University, Chidambaram, Tamil Nadu and post graduation from IARI, New Delhi. My only qualification in the field of history subject is that I prepared for the history paper in Indian civil service examination four times and secured good marks. I have been going through various history books for the past 25 years as a hobby and find that it is the best way to pass the time. Other than that I do not have any kind of professional qualification in this field.

I came across the book “The secrets of Crete” written by Wunderlich, (Wunderlich, 1974), while I was preparing for civil service examination. I was fascinated by the fact that many of the cultural traits attributed to Cretans were similar to that of South Indian culture. I felt that definitely there was strong link between India and Mediterranean region in the cultural aspects. I continued with my search for cultural roots of Dravidians with that of Mediterranean cultures. During the course of this search, I noticed the theory proposed by Wunderlich that Cretan palace was a necropolis and not a palace for living people. This remarkable insight made a deep impact in my mind, and I felt that it was the same occurrence in Indus sites also, that these sites have been wrongly classified as mega polis, whereas in reality they were only necropolis. I waited for some historian to come out with a new insight on this issue, but unfortunately no one has come out with this idea that these sites could be burial grounds. Finally I decided that the best to

bring forth this theory should be through my own effort and time will tell how far my theory was correct.

In addition to the above mentioned objective, this book is written with two sections of people in mind. One is the student community, who are preparing for civil service examination and the other one is the common Indian, who is interested in developing a layman's view of Indian History and culture. Further, the intention of this book is that there should be some clarity in understanding our ancient legacy, so that we will be better prepared to meet the future challenges as a nation as well as an individual. It is also important that we should be able to understand the perplexing cultural traits and legacies of India to survive and progress in this country. India is a cultural dinosaur, which somehow escaped the fate of extinction. The British rule of India had saved the diversity of this country and simultaneously saved Hinduism from demise. Had it been for the Islamic rule without the interruption of British rule, Hinduism would have vanished in India as it happened to the old pharaonic religion of Egypt. Many Indians think that British rule was an unmitigated evil with out and kind of positive influence, but I beg to differ. There are many good influences, which has resulted in positive developments in India. Our effort must be to preserve the best of Hindu culture and improve on it, so that our country can grow strong and healthy and survive as a vibrant nation.

Even though I started this book with an aim to help a student whose optional subject is history in civil service examination, but does not have a basic idea about ancient Indian history. This book has taken such a course that many of the issues are given totally different interpretation, and if any civil service aspirant reproduces such views, most probably he will not get any mark. Still I hope that this book will help him to understand some fundamental concepts about Indus period and Vedic period and he will be able to get some foot-hold on this subject. After getting some idea about the basic issues on Indus culture and Vedic period, the civil service aspirant should expand his knowledge by studying various books available on these topics. It is once again clarified that only standard views expressed by established Historians will be accepted in civil service examination, and these kinds of revolutionary ideas presented in this book will not fetch good marks to the candidates.

Now the book has taken such a course that I have trespassed into the domain of professional archaeologists and historians. I never had any such intention to challenge any of the scholars in this field of history. Unfortunately, I have become bogged down into the problems of the various unsettled issues in the field of Indus civilisation and have to give reasonable explanations about various issues. This process has forced me into various uncharted territories of ancient

Indian history. I have tried to give proper citation to various points raised in this book; where-ever it was available. I hope and pray that the scholars in this field should take a lenient view and forgive me for any kind of mistake in this book.

It is important to understand various contributions made by Archaeologists and Historians by learning about their life and achievements, and develop a proper healthy respect for their efforts in this field, or for that matter in any kind of field. It is not only developing a healthy respect for an individual, it actually helps in understanding and remembering the subject. For example if a student tries to remember various events and incidents that happened during the time of independence movement, it will be really difficult task to remember those events chronologically. The simplest way to understand and remember the independence movement is to study the life history of Mahatma Gandhi. Life history of Gandhi is totally linked to freedom movement; whatever happened in his life is reflected in the freedom movement. Hence, the easiest way to remember freedom movement is to remember life history of Gandhi. Any of the simple biography available in the market will suffice, but the best option is to read his auto biography, which is very easy to read but makes a deep impact on the mind.

Keeping in mind the above said principle, I have tried to give a brief introduction about various important persons we come across in this book. I hope you will enjoy and appreciate this effort. Any valuable suggestions of the readers may kindly be sent to the e-mail address of mine; krishnapriya1993@gmail.com.

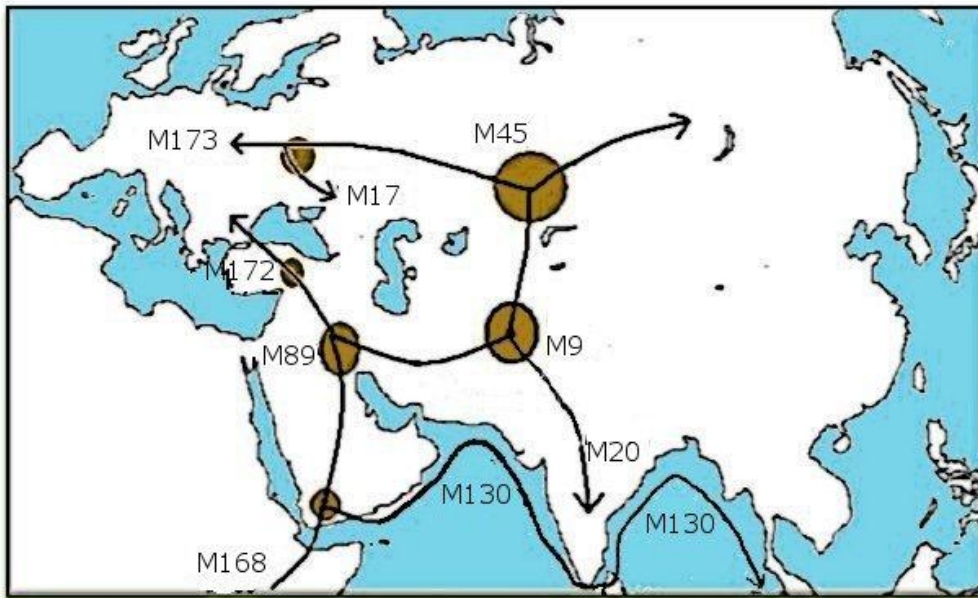
- Author

CHAPTER-I

DARK AGES

The onset of Dark Age is the sad part of human civilisation. Generally the Dark Age is considered to start with fall of the Roman Empire around 500 AD, but some of the characteristics of Dark Age could be seen in the earlier period also in some other different regions. One such incident happened in Alexandria, Egypt in the year 391 A.D.

It was an unfortunate event and it was started by religious zealots. Theophilus, bishop of Alexandria burnt the library in that year, and started the great damage. That kind of vandalism had resulted in destruction of all books all over Europe. Because of that destruction we are not able to figure out our ancient past civilisation. This has resulted in a situation that there is complete void about the knowledge of the ancient history of the world. Many evidences have been lost and there is no possibility of knowing the past. The loss has been total and forever. Now the only way out is to reconstruct the history with information available from authors like Herodotus and others. This situation has created the necessity of writing of new books by modern authors by piecing together various details available about the ancient world with some modern evidences. This book is also a new initiative in this regard to trace out our roots of Indian civilization.



Map 1: Human migration routes

Origin of human kind

Everyone is curious about his ancestors, where from he got the good qualities, and his innate superior qualities. So, it is normal that everyone is interested in this topic. The archaeological evidences are difficult and sparse for the early part of human civilisation. That does not mean that this should remain as a mystery forever. The recent emergence of genetic studies, genetic finger printing is helping in many ways. The genetic finger printing is helping in solving many crimes. In similar way it can be used to trace our ancestors also.

The book released by Spencer Wells “The Journey of Man “A Genetic Odyssey” (Wells, 2003) is an important resource in determining the movement of ancient people. It is surprising that many long forgotten issues have been cleared and clarified by his book. Many of the research papers of various geneticists have been taken into consideration in this book, while arriving at major conclusions by spencer wells. One of the major questions which bother our mind is the question that what is the place of Origin of Man? Is it Africa, Central Asia, or China? Are the Chinese, the Africans and Europeans (Caucasian) are totally different? Now, the book says that all human kind has originated from a single family as recently as 50,000 years back in Africa that resolves the problem of Origin of Man. A

small group consisting of 100-200 migrated out of Africa and populated the entire earth.

Now the other question is “How they migrated?” and “what was the route taken by them”? This book explains that there were waves of movement out of Africa during the drought times. The first migration took place around 50,000 years ago. The man identified as M168 (the specific Mutation was named as M 168) migrated out of Africa with his family. He migrated along the coast, moved rapidly during the Ice age. During the Ice Age, it was cold everywhere in Europe and Asia, but it was dry in Africa. Because of the dryness of the land, the migrating wilder beast, zebra, Thomson gazelle and other resident animals died out in large numbers. But it looks like that the M168 family were fishermen and lived in coastal areas of Eastern Africa, because they were coastal fishermen and they relied on fish for food, and they survived the severe drought of Africa of that time.

The first group of people migrated into southern tip of Arabia (Aden), but moved on through coastal Iran and India with a new mutation called M130 (50,000 years ago), reached Andaman Islands and the Andaman tribes existing in these islands are evidence to that event. This population with genetic marker M130 is found in large number in the coastal areas of India, especially South Indian coastal states. Finally this populace with M130 marker reached Australia and settled there. This fact is attested by the presence of Australian Aborigines. (Most probably) these people were fisher men and were using boats that explain the rapid movement of these people along the coast and island hopping and settlement in islands. It is not that they settled only on coastal areas, they intruded into Indian sub continent through all the major river valleys into deeper interior areas of Indian sub continent. They were the first inhabitants of India. But they could not make much head way because of lack of metal tools and lack of knowledge of agriculture.

The later day agriculturist only made the real inroad into the interior plains of India, because they could clear the forest using metal implements and could cultivate soil, which supported large population. Now the second migration is out of the M 168 men who were settled in Mesopotamia. After reaching Mesopotamia, the M168 population had grown in number, multiplied and flourished. In this population again a distinct mutation occurred, which helped in the identification of movement of this population. This mutation has been named as M89 and this occurred around 45,000 years ago.

M168 African clan	50,000 years ago	Homo sapiens migrating out of Africa, because of prolonged drought condition.
M130 Coastal marker	50,000 years ago	Entry into Arabia, coastal people migrating along the coast lines, rapidly moved and reached Australia, and the present day Australian aborigines attest to that fact. The Andaman tribes are remnants of this movement. Today this marker consists of only 5% of the population in India, restricted to coastal areas of south India.
M89 Mesopotamian marker	45,000 years ago	M89 people enjoyed settled life at Mesopotamia, in the land of two rivers, with enough water and wild cattle to feed on, hunter gatherer stage.
M9 ----- Turan Basin Clan	40,000 years ago	M9 people came out of Mesopotamian population and moved into Turan basin area around this time.
M45 Central Asian nomads	35,000 years ago	M45 people multiply and form the nomads of central Asia. Steppe lands are full of wild herd herbivores and mammoths, which supports the population growth and multiplication of steppe nomads.
M173	30,000 years ago	Central Asian M-45 population (Central Asian nomads) divide into two group. One group with M173 marker moves into Europe.
M20 Early pastoral Dravidian clan	30,000 years ago	Dravidians enter into India. Early Dravidians were hunters and cattle rearing people. 50% of the South Indians have this Mutation. This mutation arose out of M9 population (Turan Basin clan).
M172 Neolithic Anatolians Farmers	10,000 years ago	Neolithic Anatolian people migrate into Europe via Greece and other coastal areas of Europe, they were the earliest known agriculturists and they domesticated the wild cattle and goats. On the eastern side they formed Sumerian farmers and later day farmers of Indus region. This gene marker is found in equal frequency to that off M20 and M17 in India. (Wells, 2003, p. 167). They may be termed as Sumerian farmers in India
M17 Indo Europeans	10,000 years ago	Arising of Indo European people in Southern Russia and Ukraine, (most probably) learnt agriculture from Anatolians through cultural diffusion, not through conquest. Renfrew model, cultural infusion is also from Anatolia. These people domesticated horse. These people are the “heroes” of Aryan theory. The PCT theory of Alinei proposes that this so called “Kurgan” people are really intruders from Uralic region, and were Turkic people in origin. (People from Turkmenistan of Central Asia)

Table 1: Human migration details

Earliest civilisation

What is the place of origin of the earliest civilization? Is it from Egypt or Mesopotamia? Generally the Fertile Crescent has been the source of civilization. The genetic studies confirm that the Mesopotamians were the first people to increase in their number; but the genetic studies do not show, how culturally advanced they were? Fortunately, the genetic route map coincides with the cultural route map of human being. More or less the earliest civilized society has existed in Sumeria, and then migrated to Egypt. Because of this genetic study this conclusion is being said in a reasonable accuracy, otherwise it is highly debatable point and no solid evidence exists in this regard.

Egypt is the storehouse of evidences

Mesopotamia is an open plain and is in cross roads of all surrounding countries and this centrally located area was frequently invaded by different people resulting in destruction of old cultures. Even in modern days, the effects of the two wars on Iraq could be seen in the TV news itself. The old government and institutions of Iraq were utterly destroyed and the process of destruction is being continued and will result in creation of a new order in that country. The destruction of old ideas is a common recurring theme in old Mesopotamia, whereas the Egyptians were settled in one corner of Levant and they were less disturbed by invasions and destructions. Egyptians had time to adapt to the new situations, war and equipments. They were able to preserve certain ideas to a limited extent. The process of change was slow and tolerable in Egypt. The Egyptians had a chance to fight back the enemies because the enemy had to come through Sinai and other inhospitable northern desert routes. This Nile valley was protected from other sides by Sahara desert. So Nile Valley was the protective life shelter for our earliest ancestors. Further, the dry climate protected many monuments and mummies, and other perishable materials which constituted as a good material evidence for the later day archaeologists.

Next route

The next route to be taken by M89 population should have been naturally to move into Europe via Turkey and Bosphorus straits. But it did not happen that way, because Europe was in the grip of Ice Age, 50,000 years ago. Hence this route was blocked by ice. Spencer well says that the M89 population took the other route out, through Central Asia. The M9 man of Turan area followed the animal herds and

moved into Central Asia and survived and multiplied over there. He was a “Hunter man”, survived on hunting wild games. Out of this “Turan man” another mutation occurred and new people emerged and they are identified with the gene marker M45. The major stock of Central Asia population has M45 Marker genes. This mutation M45 occurred around 35,000 years ago. This central Asian population with M45 marker later divided into two branches. One branch went into Europe and other branch into Siberia. The European branch is identified as M 173, a gene mutation, which occurred 30,000 years ago, whereas the Siberian branch emerged around 20,000 years ago. The Siberian branch then moved on further into America through Bering straits and became the Red Indians of America. The movement into America occurred around 10,000 years ago.

An important gene mutation occurred in Southern Russia and Ukraine out of the genetic stock of M-173 and was marked as M17. This important mutation M17 occurred just 10,000 years ago. The maximum variations in satellite Chromosomes are found in Southern Russia and Ukraine. This concept of maximum variation located in certain area is significant because it denotes the area of origin of this M17 people. This M17 people are nothing but the nucleus of later day Indo-Europeans. This M17 is found in India at surprisingly high frequency measuring nearly 35% in Delhi and in major Hindi speaking areas. The same M-17 gene is found everywhere, wherever Indo-European language speaking people are settled like Europe, Southern Russia and Central Asia. But still the spread of IE language should not be correlated to the population of M17 people. So far, generally it was agreed that the general movement of people correlated with language. But the issue of IE gene movement along with IE language is fraught with many dissident arguments. Even after many genetic studies, Colin Renfrew stands by his own theory that the spread of IE language was from Anatolia and was a cultural diffusion and not a gene invasion.

Many of the recent genetic studies result by Bryan Sykes (Sykes 2001) and Arredi, Poloni and Tyler Smith (2007) suggest that genetic Invasion of IE population of Southern Russia and Ukraine is not convincingly proved. The major genetic stock of various European states is out of their own local gene pool developments and not because of Invasion of IE population.

Now we should not jump into conclusion that just because 35 % of the population in New Delhi has M17 gene, all indo European people entered into India around 1500BC. There is a possibility that the influx of this gene M17 is due to influx of people during invasions of Darius, Alexander, Kushans (Kanishka), Mongols (Genghis khan) and Moghuls. There were waves of invaders into India, the most successful invader left the maximum genetic imprint.

Elite dominance theory

The marker M17 arose some 10,000 years ago in the southern steppe. But, where from these Indo-European's got their language? There are many theories. But the most plausible theory is that the migration of Anatolian farmers from Mediterranean Sea region to southern Russia, through the Black Sea routes resulted in spread of Anatolian culture and language into this area. It was not massive migration but trickle down movement of "elite people" migrating north into Pontic steppe and Caspian steppe area. The elite people means the warrior aristocracy and the priestly class put together. This theory of "Elite Dominance" was first proposed by Colin Renfrew (Wells, 2003, p. 168).

The priests were carriers of culture, language & religion. Along with Anatolian citizens, traders and slaves were also brought into this area from different countries and regions. Slaves were important component of agricultural economy and civilization. When the slaves toiled and sweated for their masters, the elite group enjoyed comfort and prosperity. This comfort and free time was responsible for the extraordinary cultural and intellectual achievements of agricultural societies. Further one additional advantage for the Aegean people was that the island environment gave certain level of protection from invaders. (That is one of the reasons for the stability of island nations like England and Japan). The island environment also gave rise to egalitarian society^a, which was absent in other countries of that time. The core group of Anatolian elites moved into southern Russia along with affiliated people and mixed with local M173 population, which may be the reason for the sudden Mutation and forming of M17 population.

Now the M-17 population is culturally well equipped, naturally fit for War and to rule over other men, the "Warrior Aristocracy" was in search for wealth through adventure and conquest, searching for wealth through plundering people, not through agriculture and settled trade. That is a cultural aspect and not a genetic trait through mutation. The idea of group of warriors working together to conquer other people and enslave them comes through training and discipline not through genetic inheritance. Training and moulding group of young men into cohesive soldiers are extraordinary achievement. Once trained in that way, the soldiers became a biological killing machine. Who developed this idea first, Indo-Europeans or Anatolians? The Spartans were great warriors with extra ordinary military training from child hood onwards. They were legendary for their mental

^a Egalitarian means a society in which all classes of people are considered equal. Indian society is built on non-egalitarian ideas and is gradually changing towards egalitarianism after independence.

culture to stand along with their comrades till their death and never to desert the battle field. These are learned behaviour not inherited behaviour. It looks like that Anatolia and Aegean islands were breeding grounds for new ideas and sustaining them also. Further, the Aegean islands were in the cross roads of all important land masses and common meeting ground of various countries. So, the core of Anatolian and Aegean elite group had all the positive ideas and traits. They moved into Black Sea area, southern Russia and formed the Kurgan people (mound builders).

These Kurgan people are the torch bearers of Indo-European group. They migrated on the horse back. Their leaders carried their wealth in wagon, lived out in tents and in wagons. They were accompanied by smiths and artisans. It is not easy to form kingdoms and empires out of wagon existence. Yet, these people made empires on horseback and wagons, the Scythians first, Genghis khan later and Attila the Hun the last. Later, we find many stereotypes like Vikings and Boat people of Mediterranean Sea. All of them fall into similar pattern and a common interest, wealth through “Plunder”, which is a medieval mentality. Even now few people of the some Asian countries practice this mentality. The modern day jihadists are looking for something like the profession of old day warrior aristocracy.

Their thinking is medieval. When there is increase in population in given society (or country), the excess population enters into mercenary way of life to survive and succeed in life. They are not only interested in religious ideas but economic interest is also involved in it. This kind of extra ordinary achievement must have come from settled people like Anatolians not from nomadic Indo European people. Arnold Toynbee in his book “Rise and fall of civilisations” observes that the nomadic desert shepherds of central Asia were devoid of progress. The nomad’s culture was a stunted growth. It was an arrested growth, because all their energy and time were exhausted in their work for survival. That is applicable to the steppe nomads of southern Russia also. The war described by Herodotus, in which Darius went after the Scythians, was full of narrations about the nomadic life of Scythians. They never fought with Darius, they simply moved off to different places. In fact Darius spent all his time searching for the enemy in the vast sea of green grass that was steppe. In such a migrant situation, accumulation of knowledge is difficult. Further difficult is to codify and preserve it. In contrast to that, the settled people of that time had advantage in developing new knowledge and preserving it. The Rig Veda shows all the efforts of preservation of knowledge. The question is, whether this achievement was by Indo–European people or Anatolians farmers?

Herodotus says that the Scythians had three kinds of groups among themselves, one ruling scythes and other common scythes. Further he mentions that in the event of a death of scythe king, his body was taken around to all the groups in 40 days time the body was honoured with various gifts and buried later. Carrying the dead body for 40 days is a difficult task; it will rot. Only possibility is that the body was preserved with special knowledge, some kind of mummification, again this cultural tradition brings in to focus the influence of Middle Eastern and Mesopotamian people, not the nomadic Indo Europeans.

The dominance of warrior class could be fully understood from the stories of Hercules. Hercules was the first man to become a God. He was fifty percent man and fifty percent God at the time of his birth. But, even before that the Sumerian Hero “Gilgamesh” was the proto type warrior. This Hero culture has helped the small warrior groups conquering the other settled cultures. It is difficult that the Hero culture groups will succeed over settled cultures of present day. So, the conclusion is that the Anatolian, Hercules type elites had spread the culture and language of Indo–European people and not merely the southern steppe nomads.

30,000 years back the M-20 people migrated from Turan Basin into Indian Sub Continent. The old Dravidian culture shows many similarities to that of Mesopotamia and Egypt. These cultural ideas could be from M20 population as well as M172 population. Generally it looks like that major influence is from Anatolian farmers (M172), who founded the Indus valley civilisation. Further there is a possibility that the 30,000 years old culture of M20 people also could have survived. It can be reasonably concluded that some of the cultural ideas preserved by South Indians are 30,000 years old. Whereas the new idea of male dominance, Indra, Zeus are coming up later at 10,000BC, which is the same period around which agriculture develops in Mesopotamia and arising of Indo-Europeans happens in southern Russia. This emergence of IE gods could be from Southern Russia and Ukraine; but the original source of these cultural ideas is from Mesopotamia, Anatolia and Aegean Islands.

Home land of Indo-European

It is likely that Indo Europeans (IE) came out of southern Russia. The recent genetic studies by Spencer Wells show that the genetic Mutation M-17 occurred in southern Russia sometime around 10,000 BC. It has become one of the dominant gene pool in India, which corroborates the longstanding notion that IE came from central Asia or southern Russia. These groups of people are associated with kurgan structures and mound burial, even though they did not have burial of the

dead as their regular practice. The steppe people are invariably associated with cremation of bodies, not with burial of bodies. Burning dead body is an extreme act. There might have been some good reason for that. It is likely that these nomads feared the desecration of bodies by some other people, robbers or enemies. Because they were migrating people, they could not protect their dead; it must have been a better option for them to burn the body rather than to bury it. The kurgan people seem to be intruders into this scene, because they preferred to bury their bodies. It is likely that the kurgan people are the descendents of Anatolian origin, where burial of dead was standard practice similar to Egyptian custom.

Homer narrates about the 'cremation practice' while describing about cremations of Hector and Achilles. It is likely that the burial custom got replaced by burning practice because of the influence of Homeric people. These Homeric people are really distinct, war like, drama loving, creative people. It looks like that these Homeric people migrated from steppe lands into Mediterranean region and they might have introduced this cremation practices. Most probably these Homeric people are the descendents of Turkic people being mentioned by professor Alinei in his PCT theory.

The distinctive marker M17 is present at high frequency of 40% from Czech Republic to the Altai Mountains in Siberia and south throughout central Asia. Absolute dating suggest that this marker is 10,000 years old, and micro satellite diversity is greatest in southern Russia and Ukraine, suggests that it arose there. M17 is a descendent of M173 which is consistent with European origin. The origin, distribution and age of M17 strongly suggest that it was spread by Kurgan people in their expansion across the European Steppe. (Spencer Wells page 167)

Megalithic people of Europe

Even before the arrival of Indo European people on the scene at Aegean Islands Greece around 5000 BC, already civilized people were living all over the coastal area of Europe. They had built Megalithic burial mounds all over Europe. Some important Stone henges or old burial monuments are found at Salisbury plain of England, Carnac in Brittany (France), Ireland, Skora Brae, (Orkney Islands), Scotland, Los milares (Spanish Minorca Island), Corsica and Malta (Mediterranean) (Marshall, 2001).

Who were these people? They were led by Priests Kings not the warrior kings of Indo Europeans. They were interested in Sun movement, to fine tune their Calendar, which was important for their agricultural operations. Indian priestly class and Christian missionaries religiously maintained and preserved the knowledge of calendar. Indian calendar is known as Panjaangam, and it is the

secret knowledge of the Indian priestly class. Gradually the religious significance of Panjaangam got reduced and it became a secular one. Even now Priests are being consulted for fixing an auspicious date for the marriage ceremony. It is nothing else other than fixing a date on Calendar. But a lot of religious significance is being attributed to it. In earlier years only priests were aware of it. When will it rain? And when will it shine? It was important for the people to move around. If important events like marriages are fixed during monsoon days, it will become difficult for everyone including guests and hosts. So the priestly class kept it as a professional secret and gained out of that. It is likely that Megalithic Priests, Druids of England and Merlin of Ireland were priests, who ruled over the people. They were the people of knowledge, Medicine men, Shaman, Poet, Historian, Calendar men and weather men all the roles put together into one person. They were the leaders of their society in the beginning, but later the warrior aristocrats had taken over the role of the rulers and priests had become advisors to them.

But advisors' roles were also very important. Without advisors, the king had no proper idea about various things. So, later day Indo Europeans were led by the able leadership of Nobles and Priests; even though they were pastoral people, they had kings and established nomad kingdoms. The source of advanced knowledge to the southern steppe Europeans was through the descendents of Priestly class of Anatolia and Levent. The theory that intelligent and powerful kurgan people appeared out of nomadic existence is highly doubtful.

One important characteristic of this megalithic people is that they formed a sea based civilisation, and had spread all over European coasts and have spread beyond common man's imagination. It is likely that they were the torch bearers of civilisation after the spread of agriculture. The pyramids of Mexico, stone henges at middle of Amazon forest and the mounds of north America are all inter related and have a common origin, that can be traced back to Mediterranean Megalithic culture. This theory needs a lot of substantiation and verification. The present book is beyond this scope.

CHAPTER-II

GENERAL THEORIES AND CONCEPTS

Local theory versus Diffusion theory

There are two theories in which the development of civilisation is explained. One group adopts the local area development theory, which is more nationalistic and widely supported by national government because it helped in unifying the population and their political ideas. Where as in reality, civilizations have all the time followed the diffusion model and diffusion of idea is the greatest achievement of human civilisation. New powerful ideas conquer the world. Taming of horse helped the Indo Europeans, and was in use till the World War II. Gun powder created Genghis Khan and sustained him as well as his descendents for centuries. Genghis Khan Rule resulted in major genetic influence in the populations of central Asia and resulted in a situation that his genes are present in large section of Central Asian population (recent genetic study shows). Invention of field gun destroyed Eastern Roman Empire (fall of Constantinople). Similarly, rise of new ideas also brings in revolutionary changes. For example, rise of Islam and its powerful message swept through all known kingdoms of that time. So the idea of civilisation is essentially diffusion and good and successful ideas spread far and wide.

It is important to note that there was a cultural spread from Margiana complex into Indus valley. The Bactria-Margiana Archaeological Complex (or BMAC) is the modern archaeological designation for the Bronze Age culture of Central India. Bactria was the Greek name for the area of Bactra

(Modern Balkh), in what is now northern Afghanistan and Margiana was the Greek name for the Russian Satrapy of Marger, the capital of which was Merv, in today's Turkmenistan. It is named as Margiana culture by soviet archaeologists and artefacts found here show that there was a cultural link and continuity between the areas located in Margiana complex and the Indus valley. But Indian archaeologists and historians take a narrow view and conclude that IVC developed out of local indigenous cultures. Wider area approach should be applied as done by Gregory Possehl in his book "The Indus Civilization – A contemporary Perspective" under Chapter "The Middle Asian Interaction Sphere". (L.Possehl, 2003, p. chapter12)•

3000 BC was a time of new, unique economic and political configurations in the part of the world that is being called as "Middle Asia". This identifies the region between the Indus and the Mediterranean Sea. The middle Asian interaction sphere is made manifest in shared artefacts, including objects of trade and exchange as well as artefact styles and design motifs. These artefacts form an evidence for the maritime trade activities between Persian Gulf and Indus Region. Maritime activity was a vital component of the 3000 BC Middle Asian Interaction sphere.

Middle Eastern interaction sphere

A series of soft-stone artefacts associated with middle Asian Interactive sphere was carved with a number of stylistically coherent motifs. These include combat snake motif, humped bulls motifs and other figures, - lion headed bird, hut motifs, date palms and rosettes along with simpler portrayals such as mats, squares and whirls. Since these motifs are wide spread within the Middle Asian Interactive sphere and across a number of cultural regions, it is called the "Inter Cultural" style. The south Asian Zebu is the best example of these motifs. In a broad level, the inter cultural style is a shared set of symbols, brought together in stylistically coherent set of motifs, carved on stone that is very much the same wherever it is found.(L.Possehl, 2003).

The problem is that no one knows what these motifs mean. General assumption so far is that, the symbols were used in trade and placed as a mark of identification on the goods, or the emblem of a trader. Now, in this book a brand new theory is being proposed that these motifs are symbols for star constellation which indicated approximately the date of the person's death and these motifs are emblems of funeral practices and the commodities are the embalmed corpses and not some tradable goods.

Train journey

For any person going through a cultural change is like a train journey. For example - if a person starts his journey from Chennai to Delhi, the 2000 km journey takes him through various states in a period of two days. By the time the train reaches Delhi, the composition of passengers gets drastically changed. The train starts the journey with 90% Dravidian speaking people, and periodically many different language speaking people enter into the train. Finally, at the end of the journey, if a census of the language of the passengers is taken, the rough composition of the passengers will be something like this, with 60% Dravidian language speaking and 40% Indo European language speaking people. The change is gradual and there is no violent confrontation all the time, (of course sometimes small arguments take place, but finally every one settles down and adjusts with each other). The spread of civilisation is something like this train journey.

But the arrival of Indo European tribes was not peaceful, generally they were violent and male chauvinistic as described by Marija Gimbutas. Civilisations did not enjoy continuous peace. Violent and destructive interruptions were common in the history of civilisations. The spread of Indo Europeans was not a peaceful affair, as said by Marija Gimbutas, it was violent and destructive. Many of the old civilizations have met with violent end in their hands, because of which we have difficulties in reconstructing ancient civilization histories. For example the Egyptian civilization continued to exist and modify itself on slow pace but that also came to an abrupt end after the arrival of Islam. But the case of Mesopotamian cultures was directly opposite to that of Egyptian civilisation. All the cultures of Mesopotamian area met with violent ends.

Evolution theory

Changes in culture can be defined in another way in addition to the train journey model. It can be equated to the biological evolution theory proposed by Charles Darwin. The cultures also have under-gone similar stress and strain like biological organisms. Some of the animals ended in violent extinction, but some of the animals have flourished, and some animals adapted to change with dramatic additional capabilities or modification of body parts. Till Darwin identified that many of the distinctly different looking animals have evolved from a single ancestor, common men thought that the different species were something like uniquely made by god. Even biology scientists thought that all species arose and developed independently. Similar is the position of culture also, some cultures look

so different, but under lying nucleus is the same, and once the morphological differences are identified, the under-lying unity factor can be easily seen.

Violence destroys civilisation

It is not reasonable for us to think in a complacent way that, civilized way of life will bring in eternal survival of civilisations. It is often contrary to that expectation, and it has been recorded in the history of many civilisations that they have been brought to the end by external barbarians and internal vandals. In fact that is the fate of any civilisation. Toynbee is the proponent of this theory and came with a good example “the fall of Roman Empire”, it was not only external barbarians, the Ostro Goths and the Germanic tribes who ended the Roman civilisation , the role of internal barbarians i.e. Visigoths was also equally important. The lesson to be learnt out of this experience is that, any modern nation should plan and protect itself from external barbarians as well as internal proletariat anarchists.

Geographical influence on civilisation

Geographical locations played an important role in survival of civilizations. As said earlier, the location of Egypt in a remote corner of Middle East with natural barriers, the surrounding deserts, helped in its survival. Similarly, the Himalayan Mountain helped in the survival of Indus civilization and still helps in survival of the present day Indian Nation. Island civilizations are also another example in helping survival for a prolonged period, because intruders through sea are less frequent. But when the invaders arrived, the islanders paid terrible price, as shown by Herodotus. In his book, Herodotus is frequently narrating the stories of various Greek city states. Wars were violent and resulted in slavery of entire population of the defeated inhabitants of the city state.

The hill population enjoyed relatively better peace and tranquillity, because their small valleys are difficult to access and less attractive for any kind of cultivation and economic return. So they were left undisturbed. Typical example is the history of Tibet; such a large area had been left out without any subjugation during the colonial period. Even though the Britishers sent an expedition to Tibet, they left it untouched because making it into a colony was unattractive in the economic sense. But the harsh geographical conditions were a blessing in disguise for Tibetan people, because it helped in the survival of Buddhism for the benefit of that country as well as for the benefit of entire mankind.

Chronology

In the name of chronology, many of the history teachers kill the interest of students in the subject of history itself. I used to wonder, why there is an aversion to this subject among the young students. What gradually I realized was that many teachers insist on chronology with so much sadistic pleasure that the student loses interest in that subject. Hence I have followed a simple way of referring to the periods in rounded off figures to centuries and not to exact years; even then it is inevitable that some important years have to be given as a precise reference point. What is important in learning history is the understanding of the impact of various kings on the politico- socio-economic environment of that country and its impact on the present day nation states and not the date of birth or date of coronation of that king. A generalized chronology of ancient historic period is given below for ready reference:-

Table 2: Evolution of man and different metal ages

DIFFERENT AGES	PERIOD		SPECIFIC EVENTS
	From	To	
Homo sapiens (emergence of modern man in Africa)	500,000BC		
	100,000BC		Cave paintings at South Africa.
Palaeolithic period (Old Stone Age)	500,000BC	40,000BC	
	40,000 BC		Cro Magnon man in Europe, Cave paintings at Lascaux, France
Mesolithic (Middle Stone Age)	40,000 BC	10,000BC	
Neolithic (New Stone Age)	10,000BC	4,500BC	
Copper Age	4,500 BC	1500BC	
Bronze Age	3,000 BC	1200BC	

Santorini Eruption	1600BC		Bronze Age trade is disrupted and collapse of Mediterranean civilisations.
Mysterious sea people come in boats and destroy all settled cities and kingdoms in Levant and Anatolia. There were random movements of different tribes in Middle East also.	1200BC		All civilized societies were destroyed during this period. End of Bronze Age and beginning of another age.
Beginning of Iron Age	600 BC		

IMPORTANT EVENTS AT EUROPE AND OTHER PLACES OF THE WORLD	PERIOD	IMPORTANT EVENTS IN INDIA AT THE SAME TIME
Ice age ends	12,000--10,000BC	
Beginning of farming in Middle East	10,000 BC	
Migration of Anatolian people into Greece and Mediterranean littoral area	7,000BC	
Farming becomes widespread	5,000 BC	
Spread of Indo Europeans from Southern Russia and Ukraine	4,000BC	
Temples at Malta	3,600 BC	
Stone henge in Britain	3,200 BC	
Minoan culture	3,000--1600BC	Indus culture at its peak at Mohenjo daro and Harappa
Volcanic eruption of Santorini marks an important event because many established cultures vanished and there	1,600BC	Note that the end of Minoan culture coincides with the

was period of unrest all over the Mediterranean states. Minoan Culture comes to an end.		decline of Indus culture in India.
Beginning of Mycenaean culture in Greece	1,500 BC	Supposed to be the period in which indo European entry into India
Beginning of Greek culture	1000BC	
First Olympics	800BC	
Celts in Europe	600 BC	Birth of Buddha and painted grey ware culture in Gangetic plain
Hellenistic period (After death of Alexander)	300BC Onwards	Greek influence in India
Burning of Alexandria library	391AD	
Fall of Roman Empire Beginning of Dark Age in Europe	500AD	

Table 3: General chronology

Stone Age civilization

It is wrong to conclude that civilization started around 3000BC, which is the beginning of construction of great pyramids. If further deeper probe is made, it can be seen that it will go back further to 7000BC. The civilisation at Catal Huyuk, turkey is the oldest known civilisation. (Reader's Digest, 1988) Altogether it gives a feeling that all civilisation started with spread of agriculture. It is wrong to conclude that man was total barbarian before that. We are not able to determine the achievement of earlier pastoral people because there is no physical evidence to prove that. Archaeologists want all the time irrefutable physical evidence before accepting any possibility of civilisation at pastoral level. But at the present rate at which human population is exploding, the evidences existing which had to be archeologically explored will be destroyed because of human occupation and activity, hence there is less chance of getting any fresh data in this regard. For example war in Iraq had not only destroyed existing museum, but also various unexplored sites. All these evidences will silently vanish. Similar is the case of

Afghanistan, the civil war not only destroyed Bamiyan Buddha but it had silently damaged many other archaeological sites in an irretrievable way also.

The earliest artefacts like stone implements, flint stones and pot shreds are evidences in the study of Stone Age cultures. Generally such evidences are unimpressive for a common man but great treasure for archaeologist. Richard Rudgley (Rudgley, 1999) has collected some evidences to show the advancement of Stone Age man. He says even in 10,000BC man was highly advanced without any sign of agriculture; Stone Age man was doing advanced surgical operations, even skull surgery, and caesarean operations. So it is necessary to keep in mind that man was highly civilized even before advent of agriculture and metallurgy.

Genetic archaeology will help in developing new evidences in the place of old archaeological tools and methods. In this regard, the genetic archaeology records are much more accurate and revealing many more details, than the old theories based on physical evidences. Genetic finger printing is helping the criminologists in identifying the criminals and is being accepted as good evidence in various courts. The same way, genetic archaeology also will be accepted as good evidence in the forth coming years by historians. This is the only hope in identifying and solving the riddle involving the origin of Indo European people. Further collection of data on human gene mapping will improve our understanding on the issue of origin of IE people.

Cave paintings

Two recent reports in science discuss the issue of creation of arts by human beings (Balter, 2009). The cave paintings found in South Africa with well defined cross patterns made with ochre^b, have been dated to be at least 100,000 years old. These were merely geometric pattern, but even then making painting tools and using symbols require the capacity to hold on to an abstract concept in one's mind and executing the same with the help of tools and show the advancement of human beings. Until recently, archaeological wisdom had it that the "creative explosion" of human art and culture started in the late stone age (40,000 years ago), with Cro Magnon people of Europe and their stunning cave paintings at Lascaux and Chauvet in France. (D.Balasubramanian, 2009) Based on this evidence of South African cave paintings and other cave paintings found in

^b Ochre is naturally occurring red stone of iron oxide.

India and Australia the age of cultural development of human beings should be revised and fixed at 100,000 BC.

The mythical Saraswati River

The Rig Veda mentions about Saraswati River and some of the interpreters of ancient Indian history have come to the conclusion that it was river Ghaggar, which was flowing through Rajasthan, which has dried up now. Many other historians do not accept the view and radically different views are suggested, and all the major rivers lying between Volga to Ganges are being identified as possible Saraswati River. Among this confusion, i would also like to introduce another possible claimant for the status of Rig Vedic river.

There is a distinct possibility that the Rig Veda is talking about a mythical river instead of a real physical river. As narrated earlier, my experience with old stories end with pure mythical ideas, which are generally related with astronomical events. While studying the constellations for defining a workable calendar, our ancestors had floated many stories to explain a star constellation or important stellar events. While studying the sky, the movement of planets looks like that as if the stars and planets are moving like boats through a heavenly river. Not only that, one constellation is named as a river and there is a possibility that the Rig Vedists really meant was a river constellation and not a geographical river.



Map 2: Proposed Saraswati River valley

There is another possibility that, the river meant as Saraswati was the Euphrates and Tigris River rather than the Volga River. For a modern scholar, the Euphrates- Tigris River never comes to mind because it is a twin river, not a single one. It looks like that the combined Euphrates and Tigris River was called as Saraswati River by Sumerians. Ten thousand years ago things changed drastically due to melting of snow of ice age. Earlier the waters of Euphrates-

Tigris flowed as a single river through the Persian Gulf. Because there was no sea

in the gulf area, entire Persian Gulf was a flat meadow. After melting of the ice around 10,000 BC, the water level started to increase. It inundated all coastal areas including the present day gulf area. The sea water arose as much as 100 ft in some places. This event drastically destroyed some of the most civilized areas. It is likely that the legend of biblical flood also arose from this event.

Compared to the present day desert condition, this gulf region was much more green and rainy place because the ice line extended up to the Zagros Mountains of Iran. There were lot of green pastures, and, human population settled in that place literally enjoyed the place as “Garden of Eden”. Things changed drastically after receding of the ice line; the land became desert even though the water of the two rivers made it a fertile one. But that could never match the earlier glory. The bible story of “Garden of Eden” clearly depicts the fertility and beauty of land of Sumeria. (Reader's digest, 1998). It is likely that memory of the immense fertility and natural resources of this region lingered in the minds of people of that time and they have recorded the matter for the benefit of posterity in the form of a story, the Garden of Eden and the combined river Euphrates and Tigris was possibly the Saraswati River, being mentioned by the Rig Vedists.

Egyptian calendar

Egyptians followed Dog Star (Sirius constellation) to make their calendar accurate. There were three types of calendars in use in ancient Egypt. First, following the moon for determining religious festival dates, but it did not help in determining the agricultural cycle, because it could not determine the rising of Nile. Finally the breakthrough came with the observation that rising of Nile coincided with heliacal rising of Dog Star. A new calendar was laid out on this basis. It is relevant here because it looks like that the Dog Star is mentioned as “Sarama” in Rig Veda. The year of this new calendar has been determined as 4236 BC by Egyptologist, in that context, the age of Rig Veda also should be fixed around 5000BC; instead of being determined at 1500BC. Siddharth is also repeatedly emphasizing that the age of Rig Veda should be reassigned. (Sidharth.B.G, 1999)

The ancient Egyptians originally employed a calendar based upon the Moon, and, like many people throughout the world, they regulated their lunar calendar by means of the guidance of a sidereal calendar. They used the seasonal appearance of the star Sirius (Sothis); this corresponded closely to the true solar year, being only 12 minutes shorter. Certain difficulties arose, however, because of the inherent incompatibility of lunar and solar years. To solve this problem, the Egyptians invented a schematized civil year of 365 days divided into three seasons,

each of which consisted of four months of 30 days each. To complete the year, five intercalary days were added at its end, so that the 12 months were equal to 360 days plus five extra days. This civil calendar was derived from the lunar calendar (using months) and the agricultural, or Nile, fluctuations (using seasons); it was, however, no longer directly connected to either and thus was not controlled by them. The civil calendar served government and administration, while the lunar calendar continued to regulate religious affairs and everyday life.

In time, the discrepancy between the civil calendar and the older lunar structure became obvious. Because the lunar calendar was controlled by the rising of Sirius, its months would correspond to the same season each year, while the civil calendar would move through the seasons because the civil year was about one-fourth day shorter than the solar year. Hence, every four years it would fall behind the solar year by one day, and after 1,460 years it would again agree with the lunisolar calendar. Such a period of time is called a Sothic cycle.

Because of the discrepancy between these two calendars, the Egyptians established a second lunar calendar based upon the civil year and not, as the older one had been, upon the sighting of Sirius. It was schematic and artificial, and its purpose was to determine religious celebrations and duties. In order to keep it in general agreement with the civil year, a month was intercalated every time the first day of the lunar year came before the first day of the civil year; later, a 25-year cycle of intercalation was introduced. The original lunar calendar, however, was not abandoned but was retained primarily for agriculture because of its agreement with the seasons. Thus, the ancient Egyptians operated with three calendars, each for a different purpose. The civil year was divided into three seasons, commonly translated: "period of Inundation", when the Nile overflowed the agricultural land; "planting time", the time of planting when the Nile returned to its bed; and "period of Deficiency", the time of low water and harvest.

Sirius: the 'Dog Star'

Early Egyptians depended on the Nile's annual rising and flooding. Each year as that great river flooded it brought down mountain soil to the Egyptian plain. This enriched the fields and enabled creation of an agricultural system that supported a large civilization. In the eighth century B.C., the Egyptian Pharaoh's primary advisor, the Vizier, was charged with reporting the first appearance of the bright star we call Sirius after it had been missing from the sky for (depending upon the observer's latitude) approximately two weeks. This first appearance of Sirius in the pre-dawn sky was used to start the so-called Egyptian "lunar" calendar year, which was used for purposes of regulating religious affairs and everyday life.

Shortly after Sirius first reappeared in the east, the Nile would have its annual life-giving flood. Because of the Nile's flooding at this time, the fixing of the New Year could well be said to have been based on a geophysical as well as an astronomical event. Although many other stars may be used to fix the beginning of a sidereal year, the Egyptians made an excellent choice for this purpose. Egyptians selected the star Sirius for this purpose, which was called in the name of Sothis in Egypt. Heliacal rising of this star Sothis not only signalled the approaching Nile flood, but is also one of the brightest "fixed" stars in the heavens.

In Egypt at the present time, Sirius rises just before the sun late in July, but usually can't be seen until early August. This is because as sunrise approaches, stars fade from view and the light of dawn obliterates starlight. At the time Sirius is about to reappear, the constellation Orion is fully visible in the lower eastern sky. With the bright star Betelgeuse on his shoulder, anyone familiar with constellations would find Orion hard to miss. Sirius can be seen in the next constellation to rise (Canis Major). Because of this close relationship; Sirius was sometimes referred to as the "dog star" by early Greeks who thought of Canis Major as one of Orion's hunting hounds.

Determining age of Rig Veda

While determining age of Rig Veda, its origin has been fixed to the period around 1500 BC; it is a random fix without any proper evidence. B.G.Sidharth says the origin should be around 7000BC. (Asko Parpola says it is around 2600 BC) Similarly many of the ancient cultures are dated around 5000BC, on conservative approach, for want of reliable evidences. This age period should be revised. For example one of the oldest civilisations, the Egyptian civilisation is dated around 5000BC, because evidences are available. But Sumerian civilisation is much older than the Egyptian civilisation but older date is not being accepted for want of physical evidence. Similarly Indus culture might have followed suit to that of its mother culture, i.e. the Sumerian Culture, but still older dates for Rig Veda is not being accepted for want of some good evidence.

The only evidence that could be correlated is the planetary positions that are being discussed in Rig Veda. After considering various astronomical facts, Siddharth concludes that Rig Veda might have been in existence around 7000 BC. As discussed under the heading Egyptian Calendar, the heliacal rising of Dog Star was determined around 4236 BC. So it should be fairly concluded that around 5000 BC itself the Egyptian civilization was at its prime and peak and another 2000 years should be added to the development process and beginning of Egyptian civilisation should be safely placed around 7000 BC. It has been the generally

accepted view that fully developed culture existed in Egypt around 5000BC and it was the oldest of the civilisations that ever existed on this earth. But the excavations at Catal Huyuk in Turkey shows that people had built durable religious structure around 7000BC itself. Considering this fact, the argument of Siddharth that the date of Rig Veda should be fixed at 7000 BC should be considered as a plausible one.

Indo Europeans

The word 'Aryan' has created lot of problems and misunderstanding, and is being frequently used for showing racial supremacy. Originally the word Arya meant somebody of noble origin. The first written reference comes in the inscriptions of Darius of Iran. As it will be elaborated later, the Sanskrit language was the language of the earliest priests and priest-kings. The Indus priests depicted in seal shows more Middle-eastern features than Aryan features. Big lips and big eyes are typical of Middle-eastern race. The naked dancer statue depicts a totally African looking girl. Thus Indus priests are looking more of Sumerian origin than that of Indo-European race. The Indus valley seals show star constellations symbols, which later reappear as Jyotisha Vedanga. It looks like that the Rig Veda (oldest Veda) itself is the work of early Sumerian priests and has been assimilated by later day Indo-European priests. In this book the word Indo-Europeans have been preferably used instead of the word Aryan, which is misleading.

Early astronomy

It looks like that the earliest people were obsessed with astronomy, because they thought that they would be able to predict the future by studying movement of stars. This became the main knowledge base and source of income of priestly class. They refined it more and more, and gave elaborate stories to memorise, the constellation and star movements. Even now the constellations are being visualised as animals and picturisation is helpful in identifying the star constellations. Further such visualisations make star gazing extremely interesting and easy to remember. But this knowledge of astronomy was precious knowledge in ancient times and was zealously guarded as secret knowledge by priestly class. Considering all these above mentioned facts, the statement of Sidharth that the Vedas contained many allegorical expressions of various astronomical events should be considered as a logical explanation about Vedas. (Sidharth.B.G, 1999)

In this regard, it should be noted that all important religious centres are located in hill tops and sacrifices are made in such places. It is amazing to note that the visibility of stars are extremely good in hilly areas, whereas at the lower plains, stars twinkle and do not appear clear because of the atmospheric distortion. This distortion is due to refraction phenomena. The layers of different density in the atmosphere have refractive effect, which results in mirage effect. The mirage effect results in appearance of water in desert or tar road. Similarly in the night time, the view of the stars get distorted and disturbed at the sea level (or) lower level plain areas. Because of the said reason, hill areas would have been the ideal place for astronomical observations and studies for early priests.

It looks like that the Anatolian high land priests were the best astronomers and calendar specialist of the ancient times. It looks like that because of their superior knowledge in astronomy and calendar; the Anatolian priests had over shadowed and replaced the Sumerian priests. It is likely that the early Sumerian priests were following the moon calendar and Anatolian priests were developers of sun calendar. Naturally the sun calendar was superior over the moon calendar and prevailed in the long run. The mythological stories like Indra killing snake (vritra) or Rudra killing the bull (his father) should not be taken in literal sense. They are mythological expression of the change in calendar and should not be as such treated as invasion of one populace over the other. (Indo-Europeans vanquishing the other nations)

Geb and Nut

Geb and Nut are Egyptian gods of sky and earth respectively. Generally the sky gods are male principle and earth is the mother god. But the roles are reversed here and it shows that this myth is more ancient than any other myth which depicts sky god as male principle. (Earliest societies were matriarchal). The relevance of this myth here is that the “Kalan” is the earliest sky god of India (Indus People) and he takes a hovering position over mother earth as depicted in the picture. The calibration of astronomical position of star constellations were made by depicting various body parts of Kalan to that of constellation as shown in the figure of Kalan. Further details are under the heading jyotish wheel, under the chapter “Astronomy and calendar”.



Figure 1: Geb and Nut

Kalan

Kalan is variously described as Yama or Rudra or Shiva. In fact all the three are manifestations of the same principle of death and overseer of moral standards. He was overseer of moral principles because he could see from his heavenly position all the events, which were happening

on this earth. Pictures given here show the dignified form as well as the original form of Kalan. The dignified form of Kalan model is drawn after the depiction in the book “myths and legends”. (David Bellingham, 1996, p. 147) The original picture of Kalan could be seen in the seal depiction figure no.6.12, page no.119, of Possehl’s book. (L.Possehl, 2003). One important principle to be learnt here is that the old replaced gods are depicted as devil by the new usurpers. This second depiction of Kalan gives a feeling that it is drawn by the new generation of priests, who had replaced him with a new god (most probably proto-Shiva); hence Kalan has been depicted as devil, even though he was an important venerated god of earlier group.

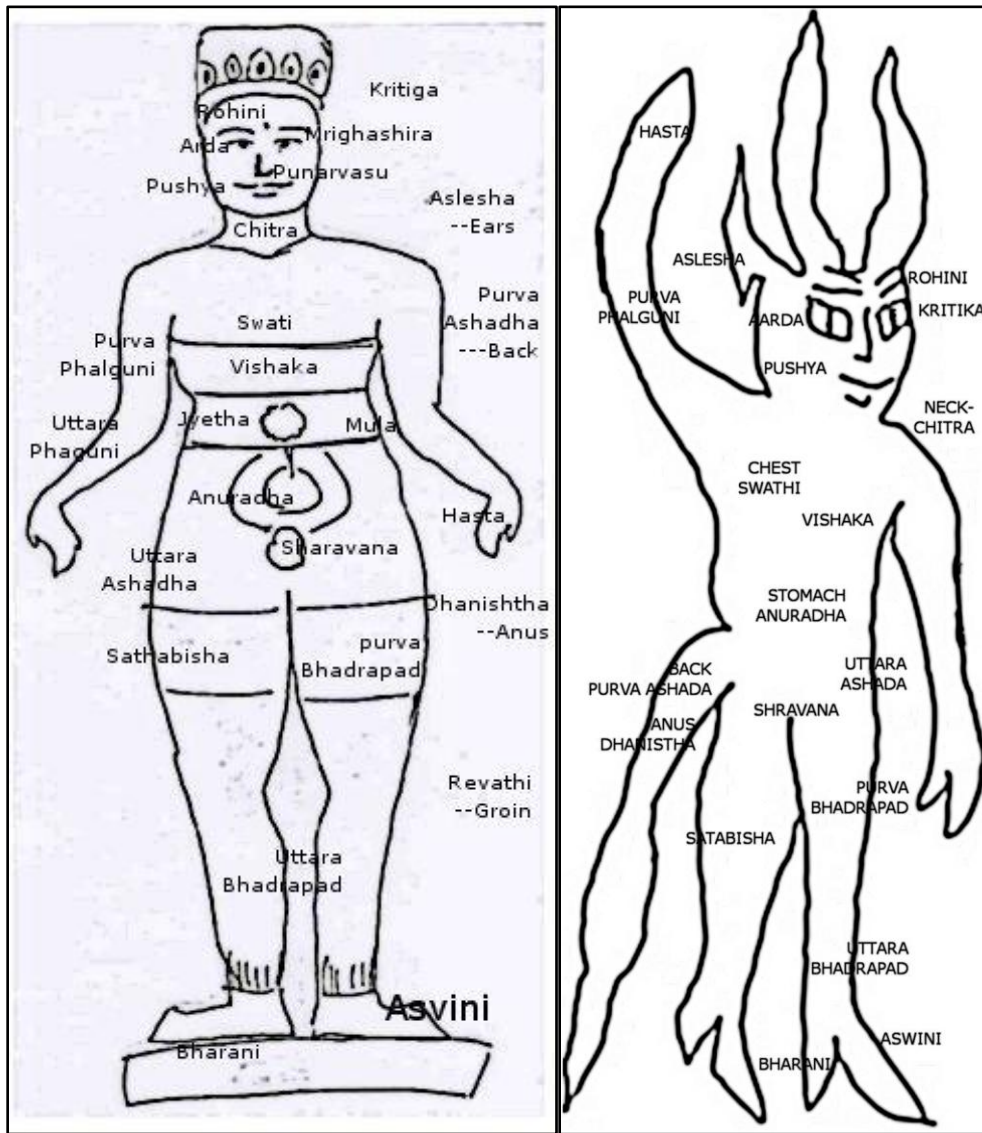


Figure 2: Depiction of Kalan dignified and original

Kalan plays an important role in this book; he is concluded as the time keeper and calendar maker of Indus people. Further details are under the heading jyotish wheel.

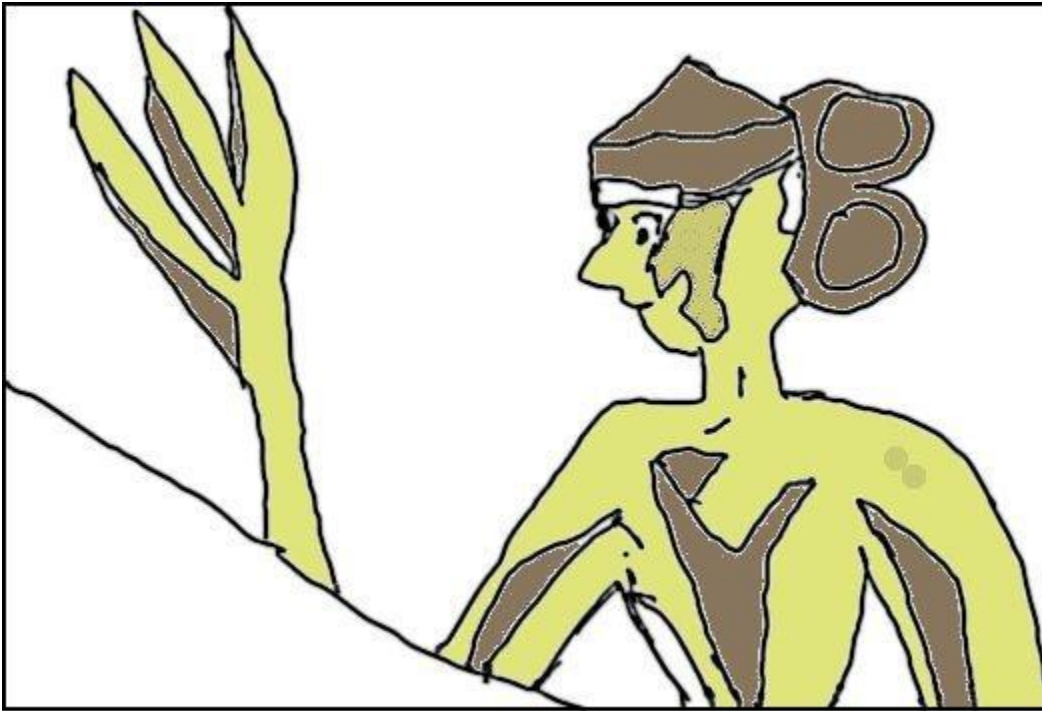


Figure 3: Depiction of Kalan.

This illustration is from a fragment of seal found in Harappa. Note that the right hand of Kalan itself is forked (Like a Trishul) and is having a double bun hair style. (Kenoyer J. M., The latest discoveries.)

Rudra- Shiva

Asko Parpola's description of Rudra is in detail and very thoughtfully analysed and narrated. It gives the full picture of the pre-Indo-European god. It is generally agreed that Rudra is pre-Vedic god and most probably prime god of the Indus people. The pictorial depiction of Rudra could be seen in the copper tablets of Mohenjo Daro. (Parpola, 2000, p. 234) Further it is generally agreed that proto Shiva depicted in the yogi seal is the next god evolved

from Rudra, and fully manifested Shiva appears in the later day Hinduism. Hence it is important to fully understand the characteristics of Rudra to appreciate the religious belief of Indus people.

The male figure shown in the copper tablet is armed with bow and arrow, anthropomorphic^c apart from having a bull's horn, tail and long eyes. A male deity having similar long eyes and bull's horn, but with a goat's beard is known from several terracotta masks and terracotta statuettes. The Harappan art also depicts the Markhor goat (wild mountain goat) with a human face, which has similar long eyes and goat's beard. (Parpola, 2000, pp. 233, 234). Rudra holds two weapons, club in one hand and bow in other hand. It is likely that all symbols depicting club and bow may be indicating Rudra. In modern day these symbols are indicating Mars (planet) and Aries (constellation), which are the outcome of evolutionary process on Rudra. In this evolutionary process Rudra was in the beginning stage, Mars and Aries are in the middle stage and Shiva and Kartikeya are in the final stage.

In Rig-Vedic hymns, the god Rudra is described as a cruel hunter and raider. With his characteristic weapon the bow, he shoots arrows at cattle and people resulting in fever, disease and death. This role of Rudra is taken over by Shiva in Vedic period and his youthful son Skanda (Kartikeya/ Murugan) (Hindu – war-god). Rudra is born out of the incestuous relationship of his father Prajapathi with his daughter Rohini. Rudra punishes his own father for this incestuous relationship. This crude story should not be taken literally and confused with moral values of ancient people. This story is an allegorical expression describing the loss of importance of bull constellation. It looks like that the beginning of the year in ancient times coincided with the heliacal rising of the constellation Auriga (the bull constellation). Later it was replaced with Dog Star (Canis Major) sometime in the ancient past. This change was very important and was recorded in story form with an attractive story. Note that the same story of queen having relationship with bull and delivering a Minotaur son appears in Greek culture, which is parallel to the story of Prajapathi's relationship with Rohini. The similarity between these two myths suggest that the story originated somewhere in Middle-east (Sumeria) and has spread on two directions, one stream towards Greece and other stream towards India.

^c Anthropomorphic form means that of giving the attribution of a human form to a god or an animal. (A kind of mixed figure of animal, god and human being)

Myths

Myths are a separate line of thinking which are exhaustive and inconclusive. It is a separate topic which has to be dealt with exclusively. The present topic Indus civilisation and Vedic culture are so much inter twined with myth that it is very difficult to ignore the study of myths. I would like to present and explain some of the important myths which are relevant in our context. I was very much intrigued by the story of Dhuruvan for long time from my child hood onwards. I was of the opinion that it was some kind of historical event which had been forgotten, which could be correlated with some historical event on the availability of some evidence. The theme of the story was so emotional that it made a deep scar in my mind and always remained in my mind.

The final breakthrough came to me a few years back, while I was reading Bhagavatha Purana. The story comes in chapter-4, where the history of Dhuruvan is narrated and it is clearly mentioned that the Dhuruvan will be reigning as pole star for a period of 26,000 years, after that he will be replaced by some other person. The editor of the book “Shrimath Bhagavatha Saram”, Shri Anna had given the page note on the scientific truth behind this story and the concept of precession. (Anna, 2003) It is truly amazing to know that our ancestors have understood the phenomenon of precession and have codified that principle in a remarkable story, so that the coming generations will remember it and will benefit from that story.

Precession is the concept that the earth revolves around sun at the same time spins around itself like a top. During such spin like a top, it does the same thing like a top, it “wobbles”. When the top wobbles, it makes a small circle on the head side. Earth also wobbles and makes a similar circular movement on the North Pole side. This results in a phenomenon that the pole star gets replaced every 26,000 years. The moral of the story is that you should not look for historical event, in every myth. The reason for developing a myth is generally an astronomical event.

I fell into the trap of myth, with the hope that it will contain some kind of evidence which will explain the controversial topic of arising of earliest civilized society. In mythological stories, I followed up the story of Perseus and tried to fix him in some historical perspective for long time. Recently, I was pursuing the astronomy subject trying to figure out the names and locations of various constellations, during this process of identification of constellations, I realised that Andromeda, the Queen’s throne and Hero (Perseus) are names of constellations and not historical figures. Using the subject of mythology with a hope to trace out some historical event may lead to a pit fall, leading to wrong conclusions.

CHAPTER-III

GENETIC ARCHAEOLOGY

Relevance of genetic archaeology

Colin Renfrew was the first historian to identify the relevance of genetics to archaeology and coined the term Archaeo-genetics. Now this field of Archaeo-genetics is giving lot of information about ancient people, which could not be determined earlier. As discussed in the first chapter of this book, the gene-mapping is helping the biology scientists to trace out the origin and movements of ancient people. Now, the time has come that historians also accept it as an important source of information and modify their theories about Stone Age, copper age and Iron Age history. Still depending only on the evidences of Stone Age artefacts for reconstruction of historical events is boring and without any kind of vitality and enthusiasm. Just like the acceptance of radio carbon dating as a tool in

historical research, gene-mapping also should be adapted as a new tool in this field of archaeology.

Luigi Luca Cavalli-Sforza

Luigi Luca Cavalli-Sforza (born January 25, 1922) is an Italian born in Genoa, and completed his graduation from Ghislieri College in Pavia (Italy) in 1939 and he received his M.D. from the University of Pavia in 1944. His post-war studies at Cambridge in the area of bacterial genetics were followed by years of teaching in northern Italy, in Milan, Parma, and Pavia. He moved into Stanford University, USA in the year 1970 and found the intellectual culture more open-ended and cooperative, and where he has remained. In 1999 he won the Balzan Prize for the Science of human origins.

Cavalli-Sforza has summed up his work for laymen in the book titled “Genes, Peoples, and Languages”. Cavalli-Sforza was one of the first scientists to ask whether the genes of modern populations might contain an inherited historical record of the human species. The study of demographics was already well-established, based on linguistic, cultural, and archaeological clues, but it had become overlaid with nationalist and racist ideologies. Cavalli-Sforza initiated a new field of research by combining the concrete findings of demography with a newly-available analysis of blood groups in an actual human population. Cavalli-Sforza has studied the connections between migration patterns and blood groups.

Cavalli-Sforza and Edwards worked together in determining various branches of human genetic divergences. The study on genetic differences among various sections of people and in various countries gave a tree like patterns of genetic divergence of human populations. Historical separation of populations and spread of genes among populations by migration and admixture distinctly created a genetic pattern and Cavalli-Sforza was the first scientist to hypothesize on human migration pattern based on genetic studies. (wikipedia)

Human Genome Project

The Human Genome Project (HGP) was an international scientific research project with a primary goal to determine the sequence of chemical base pairs which make up DNA and to identify and map the approximately 20,000-25,000 genes of the human genome from both a physical and functional standpoint. This project was started in the year 1990 and was completed in the year 2000 by the university of California Genome Bioinformatics Group. A working draft of the

genome was released in 2000 and a complete one in 2003, with further analysis still being published. Most of the government-sponsored programmes on gene-sequencing were performed in universities and research centres from the United States, Canada, New Zealand and Britain. The mapping of human genes is an important step in the development of medicines and other aspects of health care. It is an important mile stone on the point of genetic archaeology also; but government authorities play down the relevance of HGP to this field of genetic archaeology. Because, there is a notion that genetic profiling of a person may be used as a weapon against a person if his racial roots are known. Further it may create racial problems in multi ethnic societies.

While the objective of the Human Genome Project is to understand the genetic makeup of the human species, the project also has focused on several other non-human organisms such as E. coli, the fruit fly, and the laboratory mouse. It remains one of the largest single investigational projects in modern science. The "genome" of any given individual is unique; mapping "the human genome" involves sequencing multiple variations of each gene. The project did not study the entire DNA found in human cells; some heterochromatic areas (about 8% of the total) remain un-sequenced. (wikipedia)

Key findings of Genome Project

There are approximately 30,000 genes in human beings, the same range as in mice and twice that of roundworms. Understanding how these genes express themselves will provide clues to how diseases are caused. All human races are 99.99 % alike, so racial differences are genetically insignificant. This could mean all humans are descended from a single original mother. Most genetic mutations occur in the male of the species and as such are agents of change. They are also more likely to be responsible for genetic disorders. Genomics has led to advances in genetic archaeology and has improved our understanding of how we evolved as humans and diverged from apes 25 million years ago. (wikipedia)

Patterns of genetic variation carry human history

Because of the controversy over the Human Genome Diversity Project, the federal government of USA has so far granted the project relatively little funding. The large-scale effort envisioned by Cavalli-Sforza has not occurred. Small-scale investigations of genetic variation are thriving in Europe and other countries. The Centre for the Study of Human Polymorphism, based in Paris, now offers DNA samples from populations around the world for research. And the

growth of the Internet is changing how genetics research is done. But genetics research is also producing results of an entirely different kind. Differences in DNA sequences from person to person reflect the cumulative effects of human history. The patterns of genetic variation in the world today therefore carry a record of that history. They document the evolution of an African ape that began walking on two legs about four million years ago. They record the existence, sometime between 100,000 and 200,000 years ago, of a small group of people who are the ancestors of every person alive today. They chronicle the origins of "races" and "ethnic groups" and describe how those groups have both blended and separated over time. (Olson, 2001)

Genetic Engineering

A series of experiments done at the Stanford University and elsewhere transformed anthropological genetics during the 1990s. The Stanford biochemist Stanley Cohen and biochemist Herbert Boyer of the University California at San Francisco figured out how to cut DNA in precise locations, combine DNA from different organisms, and grow the resulting hybrid DNA in bacteria. For the first time, human beings could control DNA nucleotide by nucleotide. The process of DNA cutting and polymerisation is being called as genetic engineering and the age of bio-technology had begun. (Olson, 2001)

Evolution of Modern Humans

Fewer than 10,000 generations separate everyone alive today from the small group of Africans who were our common ancestors. That's much more than the twenty or so generations mentioned in Genesis, but it's the blink of an eye in evolutionary terms. Even over thousands of generations human groups have not differentiated in any substantial way. Rather, the genetic evidence indicates that modern human beings have expanded as a single, relatively well mixed population without subsequent genetic bottlenecks (bottlenecks tend to erase the evidence of previous bottlenecks, which is how geneticists know that the bottleneck in Africa was the most recent one). Our comparative youth as a species accounts for our extreme genetic homogeneity. The chimpanzees living on a single hillside in Africa have twice as much variety in their DNA as do the six billion people scattered across the globe.

Finally, as we learn more about our genetic susceptibilities to disease and our relationship to the past, we need to find better ways of putting genetics in context. People tend to attribute great importance to the findings of

geneticists. But the striking homogeneity of our DNA actually emphasizes the centrality of the environment and our experiences in determining who we are. Because culture exerts such a profound influence on complex traits, our genetic heritage has little importance in considerations of ethics or public policy. For almost a decade Cavalli-Sforza has been trapped in the paradox at the heart of human genetics. The only way to understand how similar we are is to learn how we differ. Yet any study of human differences seems to play into the hands of those who would accentuate those differences. Researchers might claim that the genetic differences they identify among groups have no biological significance. Yet simply by dividing human beings into categories like sub-Saharan Africans, Jews, Germans, or Australian aborigine will reinforce the distinctions they would seek to minimize. How to resolve this dilemma is quickly becoming one of the most difficult problems facing the study of human genetics. (Olson, 2001)

Skin Colour to Intelligence

His success led Cavalli-Sforza to consider the matter more broadly. If he could link genetics with mating and migrations among the people around Parma, why couldn't he do the same thing on a larger scale? In fact, he ought to be able to determine the genetic relationship between any two groups of people. A group should carry many of its predecessors' variants, just as children bear the genetic legacies of their parents. By detailing the genetic similarities and differences among groups, Cavalli-Sforza could trace humanity's spread across the planet. How modern human beings replaced their predecessors also remains a mystery. Archaeological evidence indicates that bands of modern and archaic people sometimes lived near each other for thousands of years. Yet no remnants of warfare have been found. The cave paintings of Europe, some of which date from the period when modern people were replacing Neanderthals, evince plenty of violence against animals but not against other people. More and more kinds of blood were being discovered in the 1950s. In 1961 Cavalli-Sforza decided that he had enough data to try his idea. He and a colleague analyzed published data on blood types in fifteen populations, three each from Europe, Africa, Asia, and the Americas, and one each from Australia, New Guinea, and New Zealand, and produced a tree showing how the various groups were related.

More than 10,000 years ago, a mutation occurred in the chromosomes of man from Siberia. As one of the man's sperm cells divided, the Y chromosome in the cell underwent a copying error. One of the chemical units making up his DNA changed from a molecule called cytosine to one called thymine. An elaborate biochemical proof reading apparatus is supposed to correct such copying errors,

which geneticists call mutations. But there are so many individual chemical units, or nucleotides in human DNA; about 60 million in the Y chromosome, and about three billion in the other chromosomes in a human sperm or egg cell, that a few mutations inevitably creep in every time a cell divides. Most descriptions of evolution emphasize natural selection, in which a beneficial mutation becomes more common over time because bearers of this mutation are more likely to survive and procreate. But if an organism just happens to have lots of descendants, its genetic variants will become more common whether they are selected for or not. (Olson, 2001)

Human differences are due to culture

Over the past decade or so genetics researchers have been undermining the widespread belief that groups of people differ genetically in character, temperament, or intelligence. They have shown that all human beings are incredibly similar genetically, much more so than other species of large mammals. They have revealed the folly of attributing group behavioural differences to biology rather than culture. Racists are convinced that human groups differ for genetic reasons in intelligence, aggressiveness, or other complex behaviours, such people have one last argument. They assume that the same forces leading to differences in appearance could somehow have influenced mental attributes. Maybe, for example, cold climates exerted some sort of selective pressure on people moving north from the tropics, favouring individuals with greater initiative or intelligence. Or maybe some other genetic process divided cognitive traits unevenly among groups.

The argument doesn't work, for two reasons. First, no mechanism has been identified that could sort complex attributes within such a genetically homogenous species, causing the behaviour of one group to differ from that of another. The idea that natural selection favoured different cognitive traits on different continents, that selective forces on colder continents led to greater intelligence, for example, seems designed more to justify social prejudice than to establish testable hypotheses. After all, Neanderthals were much better adapted to the cold than modern human beings, yet they weren't able to compete with the newcomers from Africa and eventually became extinct.

The best way to determine the genetic relationships among people is to compare the sequences of the nucleotides in their DNA. But in the early 1960s those sequences were inaccessible. Manipulating DNA in the laboratory at that time was not possible, existing tools were far too awkward to examine individual nucleotides. Cavalli-Sforza therefore turned to the next best thing; the many

thousands of proteins in the human body. The sequence of nucleotides in DNA dictates the sequence of the amino acids that constitute proteins, though the translation between the two is a convoluted process that partially obscures the underlying DNA sequence. Still, by studying proteins Cavalli-Sforza could learn at least a little about the DNA differences among people. (Olson, 2001)

Relationship between genes and behaviours

The complexity of the relationship between genes and behaviours will always confound simple-minded efforts to link the two. Even if a genetic variant seems to cause a particular behaviour, such as extroversion or verbal fluency in one environment, it may have no effect, or the opposite effect, in a different environment. The importance of a person's experiences makes it a fallacy to cite the frequency of certain genetic variants as the cause of group behaviours.

The extreme interpretation of this observation, now popular in academia, is that biological groups do not exist. That's obviously absurd. The ways in which typical Nigerians, Koreans, and Norwegians differ physically belie any claim that all human groups are somehow "socially constructed." But the development of morphological differences in a widely distributed species is a biological common place. Whenever the members of a group are more likely to mate inside the group than outside, the frequency of particular genetic markers within that group can become higher or lower. In most cases these changes are entirely random, as with the blood-type distributions that Cavalli-Sforza studied in Italian villages.

But natural selection can also be a factor. To take the classic example, as modern human beings moved from equatorial regions into more-northern latitudes, dark skin was no longer needed to protect the body from the sun's ultraviolet rays, and light skin made it possible for the body to produce more vitamin D. The resultant lightening of skin colour seems to have occurred at least two times during human history; first when Africans moved north into the Middle East and then into Europe and the second time, when dark-skinned people living on the islands and mainland of Southeast Asia migrated into what is today China. (Genetics research is demonstrating that migrations of European people into the Subcontinent of India have had much less biological significance than is commonly assumed). (Olson, 2001)

CHAPTER-IV

ORIGIN OF INDO-EUROPEANS

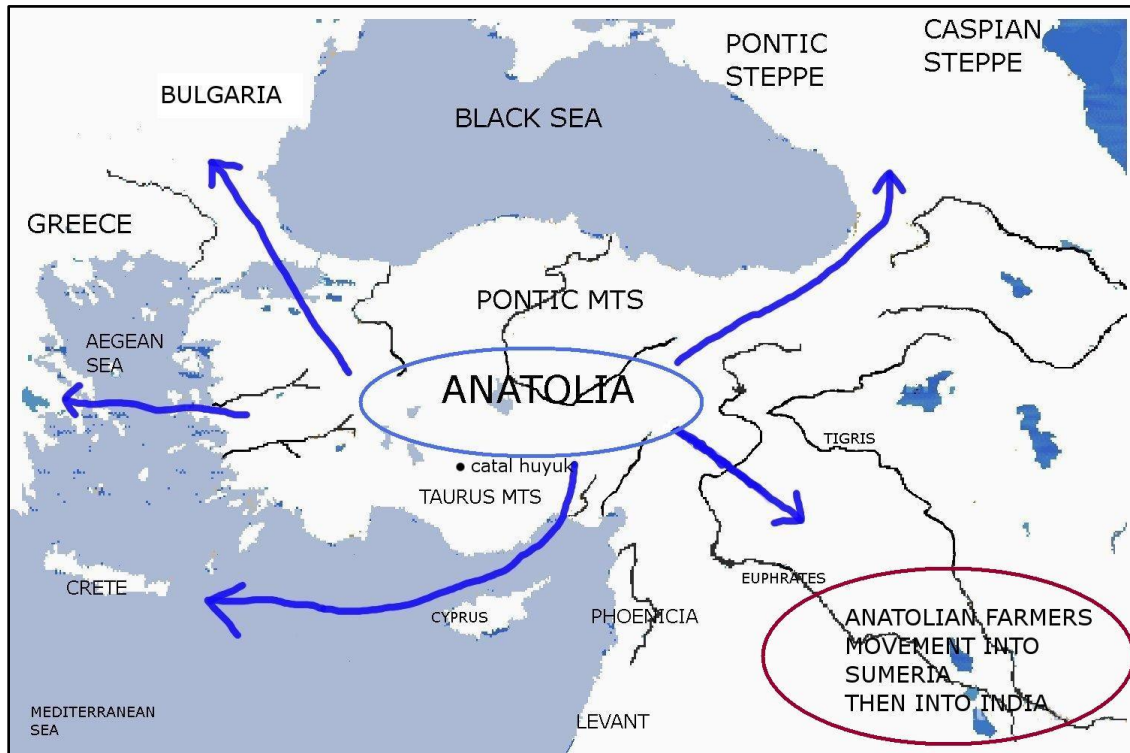
The first scholar to hypothesize a large-scale Neolithic migration, based on genetic evidence, was Cavalli-Sforza. He discovered many interesting clues about the genetic makeup of Europeans. Although being very genetically homogeneous, several patterns did exist. The most important discovery was that he found the population spread from Anatolia into Greece, Mediterranean Italy and France. This pattern represented the largest (28%) component of total European genetic variation. He attributed this to the spread of agriculture from the Middle East circa 10,000BC to 6,000BC. Such a demographic expansion might have been propagated by the technological developments affecting food availability (in this case), giving the farmers an advantage over the relatively small-sized Palaeolithic population.



Map 3: Migration direction of Anatolian farmers

Anatolian hypothesis

The Anatolian hypothesis is proposed by Colin Renfrew; and it proposes that the dispersal of Proto-Indo-Europeans originated in Neolithic Anatolia. The hypothesis suggests that the speakers of the Proto-Indo-European (PIE) lived in Anatolia during the Neolithic era, and associates the distribution of historical Indo-European languages with the expansion during the Neolithic revolution during the 7000 BC and 6000 BC millennia. (Wikipedia, 2009)

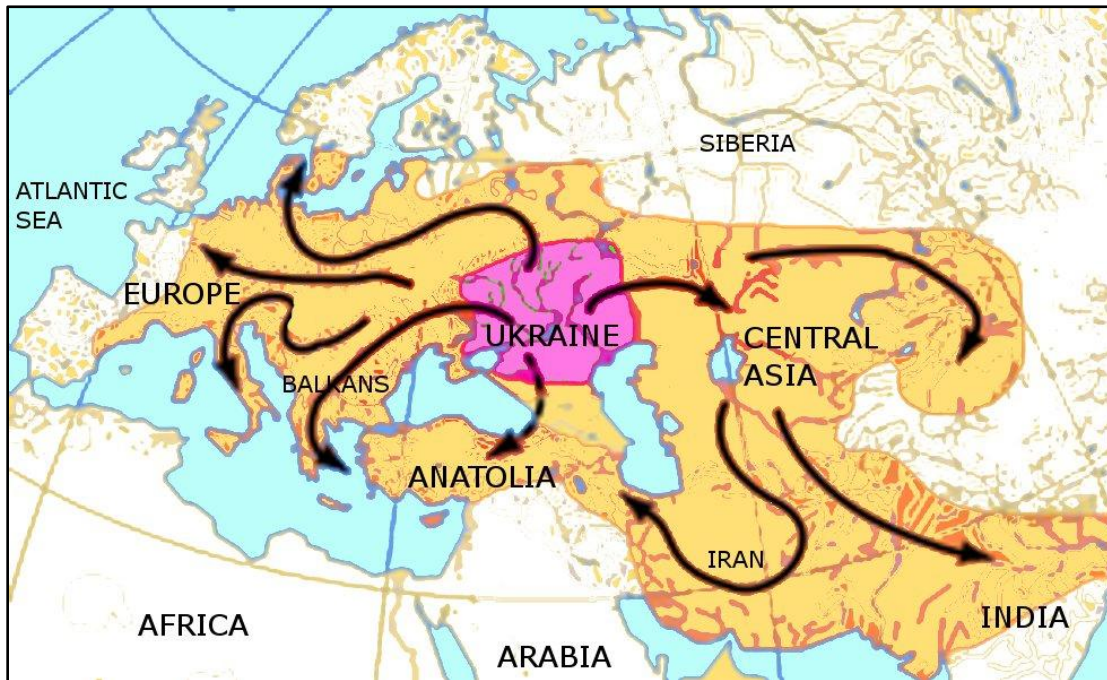


Map 4: IE Migration as per Renfrew hypothesis.

The Anatolian hypothesis' main proponent was Colin Renfrew, who in 1987 suggested a peaceful Indo-Europeanization of Europe from Anatolia from around 7000 BC with the advance of farming by demic diffusion ("wave of advance"). Accordingly, most of the inhabitants of Neolithic Europe would have spoken Indo-European tongues, and later migrations would at best have replaced Indo-European dialects with other Indo-European dialects. The main strength of the farming hypothesis lies in its linking of the spread of Indo-European languages with an archeologically known event (the spread of farming) that is often assumed as involving significant population shifts. Two other competing hypotheses exist; they are Kurgan and Palaeolithic Continuity Theory (PCT). The kurgan hypothesis places PIE in more recent time, whereas the PCT theory places them in far earlier time.

Kurgan hypothesis

The Kurgan hypothesis is a model of early Indo-European, which postulates that the people of Kurgan culture of the Pontic region were the most likely speakers of the reconstructed Proto-Indo-European language. The Kurgan hypothesis was first formulated in the 1950s by Marija Gimbutas. When it was first proposed in 1956, Marija Gimbutas's contribution to the search for Indo-European origins was a pioneering inter-disciplinary synthesis of archaeology and linguistics. The Kurgan model of Indo-European origins identifies the Pontic-Caspian as the Proto-Indo-European (PIE) home land, and a variety of late PIE dialects are assumed to have been spoken across the region. According to this model, the Kurgan culture gradually expanded until it encompassed the entire Pontic-Caspian steppe. (Wikipedia, 2009)



Map 5: IE migration as per Kurgan hypothesis.

Kurgan culture

The model of a "Kurgan culture" postulates cultural similarity between the various cultures of the Copper Age to Early Bronze Age (5th to 3rd millennia BC) Pontic-Caspian steppe to justify the identification as a single archaeological or

cultural horizon. The eponymous construction of kurgans is only one among several factors. As always in the grouping of archaeological cultures, the dividing line between one culture and the next cannot be drawn with any accuracy and will be open to debate. Gimbutas defined and introduced the term "Kurgan culture" in 1956 with the intention to introduce a "broader term" that would combine all the IE cultures in Southern Russia. The comparison of cultural similarities of these cultures is a question of archaeology, independent of hypotheses regarding the Proto-Indo-European language. The postulate of these 5th millennium "cultural similarities" informed by archaeology is a prerequisite of the "Kurgan model" which identifies the copper age (5th millennium) Pontic-Caspian steppe as the locus of Proto-Indo-European.

Language does not equal ethnic group

The linguists are attempting to develop new investigative techniques for formative linguistic processes. Generally, the linguists are not accepting the method adapted by Marija Gimbutas. While proposing the "Kurgan culture" theory, she first identified the present day uniformity of IE languages, and imposed that uniformity on earlier period (4000 BC) archaeological finding. (It is like putting the cart before the horse). This method is not being accepted by many linguists. Similarly, there is a recognized broad division among the IE-language groups. They are termed as satem group and centum group. The satem group of IE languages are in which, 'number-hundred' (100) is pronounced as "Satem". This satem group consists of all the Asian group of IE-languages – Iranian, Indian and Central Asian IE-languages. Whereas, in the European group of IE languages, the "number 100" is pronounced as "Centum", hence this nomenclature "Centum group" of IE languages. This division occurred somewhere in the middle-east (or) Central Asia around 4000 BC. This division is recognised by all the linguists. But this fact does not mean that, this fact can be imposed on earlier cultures in this area of middle-east and claim that earlier middle-eastern cultures were also IE-language speaking people. This is the apparent contradiction of theory of Marija Gimbutas.

Krell (1998) points out that the Proto-Indo-European had an agricultural terminology and not merely a pastoral one. As for technology, there are plausible reconstructions suggesting knowledge of navigation, a technology quite untypical of Gimbutas' Kurgan society. Krell concludes that Gimbutas seems to first establish a Kurgan hypothesis, based on purely archaeological observations, and then proceeds to create a picture of the PIE homeland and subsequent dispersal which fits neatly over her archaeological findings. The problem is that in order to

do this, she has had to be rather selective in her use of linguistic data, as well as in her interpretation of that data. Such an unsystematic approach should have given her linguistic proponents real cause for questioning the relevance of her theory, especially if one considers that, by virtue of its nature, the study of PIE is first and foremost a matter for linguistic, not archaeological, investigation. (Bryant 2004:40)

Peaceful vs. violent spread

Gimbutas believed that the expansions of the Kurgan culture were a series of essentially hostile, military invasions where a new warrior culture imposed itself on the peaceful, matriarchal cultures of "Old Europe", replacing it with a patriarchal warrior society, a process visible in the appearance of fortified settlements and hill forts and the graves of warrior-chieftains. But other historians differ and propose that the process of Indo-Europeanization was a cultural, not a physical transformation. It must be understood as a military victory in terms of imposing a new administrative system, language and religion upon the indigenous groups.

In her later life, Gimbutas increasingly emphasized the violent nature of this transition from the Mediterranean cult of the Mother Goddess to a patriarchal society and the worship of the warlike Thunder god (Zeus, Dyaus), to a point of essentially formulating feminist archaeology. Many scholars who accept the general scenario of Indo-European migrations proposed, maintain that the transition was likely much more gradual and peaceful than suggested by Gimbutas. The migrations were certainly not a sudden, concerted military operation, but the expansion of disconnected tribes and cultures, spanning many generations. To what degree the indigenous cultures were peacefully amalgamated or violently displaced remains a matter of controversy among supporters of the Kurgan hypothesis.

Renfrew's Linguistic Time depth

While the Kurgan scenario is widely accepted as one of the leading answers to the question of Indo-European origins, it is still a speculative model, not an ideal or standard model. The main alternative suggestion is the theory of Colin Renfrew, postulating an Anatolian, and the spread of the Indo-European languages as a result of the spread of agriculture. This belief implies a significantly older age of the Proto-Indo-European language (ca. 9,000 BC as opposed to ca.4000 BC). Some linguists do not support this Renfrew theory on the grounds of

glottochronology^d (though this method of glottochronology is widely rejected as invalid by mainstream historical linguistics). This objection of linguists have some basis, because the PIE language contained words for devices especially related to cattle-breeding and riding invented not earlier than the 5th millennium BC by nomadic tribes in Asian steppes, and because there are some difficulties in correlating the geographical distribution of the Indo-European branches with the advance of agriculture.

A study in 2003 by Russell Gray and Quentin Atkinson at the University of Auckland, using a computer analysis based upon lexical data, favours an earlier date for Proto-Indo-European than assumed by the Kurgan model, ca. the 7th millennium consistent with Renfrew's Anatolian homeland theory. Their result is based on maximum likelihood analysis of Swadesh lists.^e Their results run counter to many accepted categorizations of linguistic relations between the different branches within the Indo-European languages tree.

Occurrence of Horse-riding in Europe

According to Gimbutas's hypothesis, the reconstructed linguistic evidence suggests that the Indo-Europeans were horse-riding warriors who used thrusting weapons and could easily overrun other areas, and did do so in so far as central Europe is concerned, around the fourth-fifth millennia BC. On the techno-cultural level, the Kurgan people were essentially at a pastoral stage. Discounting this equation, Renfrew holds that on the European scene mounted warriors appear only as late as the turn of 1000BC and these could in no case have been Gimbutas's Kurgan warriors predating the facts by some 2,000 years. According to Krell (1998), Gimbutas' homeland theory is completely incompatible with the linguistic evidence. Krell compiles lists of items of flora; fauna, economy, and technology that archaeology has accounted for in the Kurgan culture. Then she compares it with lists of the same categories as reconstructed by traditional historical-Indo-European linguistics.

Krell finds major discrepancies between the two, and underlines the fact that we cannot presume that the reconstructed term for 'horse', for example, referred to

^d Glottochronology means study of language divergence dating.

^e A **Swadesh list** is one of several lists of vocabulary with basic meanings, developed by Morris Swadesh in the 1940–50s, which is used in lexicostatistics (quantitative language relatedness assessment) and glotto chronology.

There are two basic versions of Swadesh list, one with 200 meanings, and the other with 100 meanings.

the domesticated equid in the protoperiod just because it did in later times. It could originally have referred to a wild equid, a possibility that would undermine the mainstay of Gimbutas's arguments that the Kurgan culture first domesticated the horse and used this new technology to spread surrounding areas, thus spreading the Indo-European languages. (Bryant, 2002:40.). Kathrin Krell (Krell, 1998) finds that the terms found in the reconstructed Indo-European language are not compatible with the cultural level of the Kurgans. Krell holds that the Indo-Europeans had agriculture, whereas the Kurgan people were just at a pastoral stage. There are others, like Mallory and Schmitt, who are equally critical of Gimbutas's hypothesis.

Palaeolithic continuity theory

The Palaeolithic Continuity Theory (or PCT) is a hypothesis suggesting that the hypothetical Proto-Indo-European can be traced back to the Palaeolithic era, tens of millennia earlier than the Chalcolithic or at the most Neolithic (Beginning from 40,000 BC) estimates in other scenarios of Proto-Indo-European origins. Its main proponent is linguist Mario Alinei (professor at the University of Utrecht, Netherlands). The PCT postulates that the advent of Indo-European languages should be linked to the arrival of *Homo sapiens* in Europe and Asia from Africa in the Upper Palaeolithic. Employing "lexical periodization", Alinei arrives at a timeline deeper than even that of Colin Renfrew's hypothesis. The framework of PCT is laid out by Alinei in four main assumptions; Continuity is the basic pattern of European prehistory and the basic working hypothesis on the origins of IE languages. Stability and antiquity are general features of languages. The lexicon of natural languages, due to its antiquity, may be "periodized" along the entire course of human evolution. Archaeological frontiers coincide with linguistic frontiers.

(Wikipedia, 2009).

The continuity theory draws on a Continuity Model, postulating the presence of IE and non-IE peoples and languages in Europe from Palaeolithic times and allowing for minor invasions and infiltrations of local scope, mainly during the last three millennia. Arguing that continuity is "the archaeologist's easiest pursuit," Alinei deems this "the easiest working hypothesis," putting the burden of proof on competing hypotheses as long as none provide irrefutable counter-evidence. Alinei also claims linguistic coherence, rigor and productivity in the pursuit of this approach.

Historical reconstruction

Associated with the Palaeolithic Continuity Theory (PCT) is the historical reconstruction proposed by Alinei, which suggests that Indo-European speakers were native in Europe since the Palaeolithic. According to this reconstruction, the differentiation process of languages would have taken an extremely long time; by the end of the Ice Age, the Indo-European language family had differentiated into proto Celtic/ Italic/ Germanic/ Slavic/ Baltic speakers occupying territories within or close to their traditional homelands. The rate of change accelerated when (Neolithic) (4000-3000 BC) social stratification and colonial wars began.

The Palaeolithic Continuity hypothesis reverses the Kurgan hypothesis and largely identifies the Indo-Europeans with Gimbutas' "Old Europe." PCT reassigns the Kurgan culture (traditionally considered early Indo-European) to a people of predominantly mixed Uralic and Turkic stock. This hypothesis is supported by the tentative linguistic identification of Etruscans as a Uralic, proto-Hungarian people that had already undergone strong proto-Turkish influence in the third millennium BC, when Pontic invasions would have brought this people to the Carpathian Basin. A subsequent migration of Urn field culture signature around 1250 BC caused this ethnic group to expand south in a general movement of people, attested by the upheaval of the Sea Peoples and the overthrow of an earlier Italic substrate at the onset of the "Etruscan" Villanovan culture.

Proponents point to a lack of archaeological evidence for an Indo-European invasion in the Bronze Age; to the lack of substantial genetic change since the Palaeolithic; and to analogy with a theory of a Palaeolithic origin of Uralic peoples and languages in Eurasia. Moreover, the continuity theory is much more parsimonious in comparison with classical approaches to the IE developments.

Genetic evidences

For the specific problem of the origins of Indo-European languages, Cavalli Sforza has first tried to adjust his data to the traditional model of the warlike invasion theory, claiming that the two data converged, and later has done the same with Renfrew's model. (Ammerman-Cavalli Sforza 1984) Nevertheless, he has recently had to surrender to the latest outcome of genetic research, i.e. 80% of the genetic stock of Europeans goes back to Palaeolithic. Bryan Sykes comments that the Neolithic farmers have certainly been important; but they have only contributed

about 20% of European genes. It is the hunters of the Palaeolithic that have created the main body of modern European gene pool. (Sykes, 2006)

However, genetic research has not conclusively shown that modern Europeans are primarily the descendants of Palaeolithic hunters since modern science is still unable to extract Y-DNA haplogroups from Palaeolithic samples. Thus the possibility remains that modern European haplogroups may be result of later immigration. For instance, the recent analysis of Arredi, Poloni and Tyler-Smith (Arredi Barbera, 2007) suggests that R1b-M269, the most common western European haplogroup, may have entered Europe only in the Neolithic period. (Along with introduction of agriculture) In contrast to paternal lineages, identification of ancient mtDNA (maternal lineages) has met with some success. These studies have revealed significant genetic differences between modern and ancient Europeans.

Language--Sanskrit

There is a general feeling that Sanskrit came along with Indo Europeans of Southern Russia, but there is a possibility that this language existed along with common colloquial language as the language of the elites and priests. The elite groups had many tactics to maintain their identity and exclusiveness. Some strategies are like dress style, (like modern day designer clothes), hair style (head bun style for elite and normal crew cut for ordinary class), head bun style was the sign of elite class in Egypt, Mesopotamia and India, similarly the Indus priest statue also depicts hair bun style, but the ultimate instrument of exclusiveness was language. In modern day example, if a province wants to separate out from an existing nation, language is the first ideology used in creating division and separating out people. In Similar way, language is a potential weapon in creating a separate, exclusive identity to the elite class. It is possible that Sanskrit existed side by side along with Dravidian language in Indus valley culture.

In a way, the language differentiation is helpful in identifying the foreigners. See the case of migration of people from Bangladesh and infiltration from Pakistan into India. The migration from Bangladesh is rampant and migration from Pakistan is negligible, because any Urdu or Sindhi speaking foreigner can be easily identified but a Bangala speaking foreigner could not be identified because it is a common language in both countries. The point is that the language helps in creating identity to a section of people, and that distinctiveness brings in prosperity to that section of people, and they have the vested interest in maintaining the exclusivity of that language, and that is reason for creation and survival of Sanskrit language. Palaeolithic continuity theory and Anatolian hypothesis is in

concurrence with Sumerian origin of Sanskrit. Renfrew's Anatolian hypothesis also coincides with this view because the origin of PIE was somewhere in the heart of Anatolia, which is much nearer to Sumeria than southern Ukraine.

Demotic and common script

In Egypt there were two forms of scripts existing side by side, one is the language of common people called demotic^f and other script was of priestly language called hieratic^g closely related to Hieroglyphic. Initially the demotic or hieroglyphic scripts could not be deciphered. During the time of Napoleonic war in Egypt, the Rosetta stone was found and the French man Silvestre de Sacy deciphered the Egyptian scripts. Similar is the case of Sanskrit. It has been always called as language of the gods, given by gods. It was spoken only by priestly class and was understood only by them. Because of that exclusivity, it is a dying language in India. But the point is that, this elite language simultaneously existed side by side with the other Dravidian languages of the common people. The reason for the wide spread distribution of the Indo European languages is that, wherever the priestly class moved in, the priestly language also have spread. Even in new territory like southern steppe and subsequent spread, the language might have first entered into southern Russia from Anatolia. It is likely that this spread was not by physical conquest, but was a peaceful spread by cultural diffusion. But after entering into southern steppe, it took the form of physical conquest in the hands of Indo-Europeans of Southern Steppe. The later day genetic spread of M-17 genes should not be taken as the only criteria. The later day spread of Indo-European languages are by physical violence, but the beginning was cultural diffusion which

^f **Demotic** (from Greek, meaning "popular") refers to the ancient Egyptian script derived from northern forms of hieratic used in the Delta. The term was first used by the Greek historian Herodotus to distinguish it from hieratic and hieroglyphic scripts. The Demotic script was used by the Egyptians for "document writing", which the Second century scholar Clement of Alexandria called "letter writing,"

^g **Hieratic** is a cursive writing system used in pharaonic Egypt that developed alongside the hieroglyphic system, to which it is intimately related. It was primarily written in ink with a reed brush on papyrus, allowing scribes to write quickly without resorting to the time consuming hieroglyphs. The word *hieratic* derives from the Greek phrase meaning "priestly writing", which was first used by Saint Clement of Alexandria in the second century AD, as at that time hieratic was used only for religious texts, as had been the case for the previous thousand years.

does not leave any genetic trace, only cultural trace, this theory clearly follows the pattern proposed by Renfrew.

The theory of Marija Gimbutas has flaw in it, because it explains only the spread of kurgan culture after 3000 BC, but the spread of agriculturist theory proposed by Cavalli Sforza put forth the evidence that highly advanced civilization existed in 10,000 BC itself and they started moving into all cultivable area of the entire European continent and they formed the megalithic civilization of Europe and Asia as well the central American cultures. There are many remarkable similarities in various features of these transatlantic Meso American cultures and megalithic cultures of Europe, building of pyramids, calendars, human sacrifice and others. It looks like that the megalithic culture of Europe had spread to Meso America through the maritime cultures of European Atlantic sea Coast, and the contact between these cultures was snapped because of some unforeseen disaster, most probably the eruption of Santorini and consequent tsunami. It looks like that disaster created by that tsunami was massive and could have wiped out major cities of Mediterranean sea which resulted in a cultural vacuum and total break of ties with central America. As a result of that disaster, the contact between these cultures had been totally forgotten and only being remembered as Atlantis myth.

Language spread is through diffusion

Language and religion generally spread through diffusion model. Imagine, a scenario in which the present civilised world is forgotten because another black age (possibility is less) and after some centuries another renaissance happens, and the scholars will find lot of evidence for the spread of English language, and all over the world. But they will come to a conclusion that the place of origin of English language was America, because large number English books found along with inscriptions in English were found in many buildings in America. England will be considered as place of secondary spread, through conquest by Americans. Similar is the fate of IE languages, once it was the official language of ancient people of middle-east and had spread far and wide, later because of various disasters the continuity was broken. Many theories are being floated now and the most popular theme is that Ukraine is place of origin of IE languages and Ukrainian were the torch-bearers of all the associated cultures of IE people. This is apparently not a sustainable argument.

Similar is the case of religion. If someone comes to a conclusion that because of Jewish origin of Jesus, all the present day Christians also will be of Jewish descent, it will be nonsensical conclusion. Same way, it is wrong to conclude that the Ukrainians speak Indo-European language, and the Ukraine is the home land of Indo-Europeans. Indo-European languages might have spread by way of diffusion as well as by genetic conquest. Hence it is wrong to conclude that Indo-European people were violent and successful in warfare and have spread far and wide. But a balanced view should be taken on this issue.

Sanskritisation

Sanskritisation is a particular form of cultural assimilation found in India. The term was popularized by Indian sociologist M N Srinivas, to denote the process by which castes placed lower level in the caste hierarchy seek upward mobility by emulating the rituals and practices of the upper or dominant castes. Srinivas defined sanskritisation as a process by which a 'low' or middle Hindu caste, or tribal or other group, changes its customs, ritual ideology, and way of life in the direction of a high and frequently 'twice-born' caste. Generally such changes are followed by a claim to a higher position in the caste hierarchy than that traditionally conceded to the claimant class by the local community. One clear example of sanskritisation is the adoption, in emulation of the practice of twice-born castes, of vegetarianism by people belonging to the so-called "low castes" who are traditionally not averse to non-vegetarian food. According to M.N. Srinivas, Sanskritisation is not just the adoption of new customs and habits, but also includes exposure to new religious ideas, rituals and values appearing in Sanskrit literature. In culmination of this process, Sanskrit language itself is adopted as a sign of advancement. (Srinivas.M.N., 1952)

Srinivas

Srinivas first propounded this theory in his D.Phil. thesis at Oxford University. The thesis was later brought out as a book titled "Religion and Society among the Coorgs of South India." Published in 1952, the book was an ethnographical study of the Coorg community of Karnataka, India. Srinivas writes in his book that the caste system is far from a rigid system in which the position of each component caste is fixed for all time. Movement has always been possible, and especially in the middle regions of the hierarchy. A caste was able, in a generation or two, to rise to a higher position in the hierarchy by adopting

vegetarianism and teetotalism, and by Sanskritising its ritual and pantheon. In short, it took over, as far as possible, the customs, rites, and beliefs of the Brahmins, and adoption of the Brahminic way of life by a low caste seems to have been frequent, though theoretically forbidden. This process has been called 'Sanskritisation' in this book, in preference to 'Brahminisation', as certain Vedic rites are confined to the Brahmins and the two other 'twice-born' castes. The book challenged the then prevalent idea that caste was a rigid and unchanging institution. The concept of sanskritisation addressed the actual complexity and fluidity of caste relations. It brought into academic focus the dynamics of the renegotiation of status by individuals from various castes and communities in India.

The relevance of this concept in this book is that this process of sanskritisation shows the process through which the Indo European languages had spread throughout the world. It was not a violent process as imagined by Gimbutas; it was a peaceful diffusion process and cultural assimilation. Some time there would have been violence in spread of any language. That is part and parcel of any armed conflict and invasion resulting in subjugations, which were plenty in the history of world. But the general rule is that language and culture had spread by peaceful diffusion process. This cultural and language spread was carried out by Anatolian elites, into Ukraine, Southern Russia and other places where Indo European languages are being spoken today. The same phenomenon can also be seen in later day invaders of India. Huns adopted Buddhism and became champions of that religion (Kanishka). The descendents of Genghis khan adopted Islam. These examples of Huns and Mongols show that language and religion were adopted in peaceful way, not violence. The reason for their success and spread is due to the fact that religion offers some kind of security and language offers “utility” value. Language is used in commerce, religion as well as Court language, which offers gainful employment and tool of survival.

Chapter-V

MINOAN CIVILIZATION

It is important to know about Arthur Evans before going into Minoan civilization. Sir Arthur John Evans (1851 – 1941) was a British archaeologist most famous for unearthing the palace of Knossos on the Greek island of Crete. Evans was born in England and attended Harrow School, and, Oxford. Evans had been deciphering script on seal stones on Crete in 1894, when the island was declared an independent state in 1900; he purchased the site and began his excavations of the palace ruins. Arthur Evans found 3,000 clay tablets during excavations and worked to transcribe them. From the transcriptions it was clear that the tablets bore traces of more than one script. Evans dated the “Linear-A tablets at Knossos as immediately prior to the catastrophic Minoan civilization collapse around the year 1500BC.

On the basis of the ceramic evidence and stratigraphy, Evans concluded that there was a civilization on Crete before the civilizations recently brought to light by the adventurer-archaeologist Heinrich Schliemann at Mycenae and Tiryns. The huge ruin of Knossos spanned five acres and had a maze-like quality to it that reminded Evans of the labyrinth described in Greek mythology as having been built by King Minos to hide his monstrous child. Thus, Evans dubbed the civilization once inhabiting this great palace as that of the Minoans. By 1903, most of the palace was excavated, bringing to light an advanced city containing with artwork and many examples of writing. Painted on the walls of the palace were numerous scenes depicting bulls, leading Evans to conclude that the Minoans did indeed worship the bull.

Source of Minoan alphabet

Evans in his 1901 work “Scripta Minoa” claimed that most of the symbols for the Phoenician alphabets are almost identical to the many centuries older, Ca 1900 BC, Cretan hieroglyphs. Modern scholars now see it as a continuation of the Proto-Canaanite alphabet from ca. 1400 BC, adapted to writing a Canaanite (Northwest Semitic) language. The Phoenician alphabet seamlessly continues the Proto-Canaanite alphabet, by convention called Phoenician from the mid 11th century, where it is first attested on inscribed bronze arrowheads.

The term Minoans refers to the people of Crete in the Aegean. Ceramic items created during the Neolithic period in Crete date to 7000 BC and the height of the Minoan culture flourished approximately from 3000 to 1500 BC when their culture was superseded by the Mycenaean culture. The Minoans were one of the civilizations that flourished in and around the Mediterranean Sea during the Bronze Age of Greece. These civilizations had much contact with each other, sometimes making it difficult to judge the extent to which the Minoans influenced, or were influenced by, their neighbours. Based on depictions in Minoan art, Minoan culture is often characterized as a matrilineal society centred on goddess worship. Minoan Palaces, such as the one at Knossos, were technologically advanced; expanded drainage systems, irrigation, aqueducts, and deep wells that provided fresh water to the inhabitants. The palaces were multi-storied and contained interior and exterior staircases, light wells, massive columns, storage magazines, and courtyards.

Chronology and history

S.No	Name of the Period	Age
1	Pre palace period	7000 BC – 3000 BC
2	Peak of Minoan culture	3000 BC – 1500 BC
3	Neo palatial period (New Palace period) (Belonging to Bronze Age)	1700 BC- 1600 BC
4	Santorini volcanic Eruption	1600 BC
5	Island captured by Mycenaeans Greeks	1400BC
6	Final decline	ca 1200 BC

Table 4: Minoan chronology

History

The oldest signs of inhabitants on Crete are ceramic artefacts left by Neolithic people that date to approximately 7000 BC. The beginning of its Bronze Age, around 3000 BC, was a period of great unrest in Crete, and also marks the beginning of Crete as an important centre of civilization. At the end of Ca 1700 BC, there was a large disturbance in Crete, probably an earthquake, or possibly an invasion from Anatolia. The Palaces at Knossos, Phaistos, Malia, and Kato Zakros were destroyed. But with the start of the Neopalatial period, population increased again, the palaces were rebuilt on a larger scale and new settlements were built all over the island.



Map 6: Map of Crete and Santorini.

The Neopalatial period represents the apex of the Minoan civilization. A short time after the catastrophe of Santorini volcanic eruption, around 1500 BC, the island was conquered by the Mycenaeans. These people adapted Linear-A Minoan script as Linear-B for their Mycenaean language, a form of Greek. After about a century of partial recovery, most Cretan cities and palaces went into decline in Ca 1300 BC. Knossos remained an administrative centre until 1200 BC.

Geography

Crete is a mountainous island with natural harbours. There are signs of earthquake damage at Minoan sites. Homer recorded a tradition that Crete had ninety cities. The site at Knossos was the most important one. Archaeologists have found palaces in Phaistos and Malia as well. The island was probably divided into

four political units, the north being governed from Knossos, the south from Phaistos, the central eastern part from Malia, and the eastern tip from Kato Zakros. Smaller palaces have been found in other places.

Society and culture

The Minoans were primarily a mercantile people engaged in overseas trade. Their culture, from ca 1700 BC onward, shows a high degree of organization. Many historians and archaeologists believe that the Minoans were involved in the Bronze Age's important tin trade; tin, alloyed with copper apparently from Cyprus, was used to make bronze. The decline of Minoan civilization and the decline in use of bronze tools in favour of superior iron ones seem to be correlated. The Minoan trade in saffron, which originated in the Aegean Sea littoral area, has left few material remains. A fresco of saffron-gatherers at Santorini is only reminder of this saffron trade. This inherited trade pre-dated Minoan civilization. The profitability of this trade was equal to the profits of the later day trade in frankincense, or still later, to pepper trade with India. Archaeologists tend to emphasize the more durable items of trade; ceramics, copper, and tin, and dramatic luxury finds of gold and silver.

Objects of Minoan manufacture suggest there was a network of trade with mainland Greece (notably Mycenae), Cyprus, Syria, Anatolia, Egypt, Mesopotamia, and westward as far as the coast of Spain. Minoan men wore loincloths and kilts. There is a picture of three Women standing side by side in the Knossos palace, these women are depicted wearing an upper garment that were open to the navel, leaving their breasts exposed, and had short sleeves and layered flounced skirts. Based on this picture Arthur concluded that exposed breasts were the style of Minoan women of that time.

This description of dress of women exposing their breast is highly misleading. Wunderlich^h says it was a mourning practice, exposing the breasts to show their grievance. This explanation of Wunderlich seems to be correct because similar practice existed in South Indian Dravidian population also. In some communities the widowed women don't wear the blouse but cover the upper body with part of the white saree. Widowed women wear white sari, discarding coloured saree as a mark of widow hood. It is a vanishing practice and gradually being abandoned now. Beating the breast as a sign of grievance is a common practice all

^h Wunderlich was geology professor in German University, and during his visit to Knossos, he got doubt about the entire "palace theory" of Arthur Evans. Wunderlich has proposed a theory that Knossos was a burial place, and not a living palace and his observations are published in the Book "The secret of Crete".

over South India. Further, all widowed women will join together and cry, beating their breasts at the house of mourning on daily basis for 40 days. Some time professional women mourners consisting of widows will be employed for this purpose. The professional women will lead the mourning lamentations and other female relatives of the deceased person will join the mourning. All these customs are vanishing and after some time, no trace of these customs will be left out. (Note that mourning period is equivalent to mummification period of 40 days.)

The statues of priestesses in Minoan culture and frescoes showing men and women participating in the same sports such as bull, lead some archaeologists to believe that men and women held equal social status. Inheritance is thought to have been matrilineal. Minoan religion was goddess worship and women are represented as those officiating at religious ceremonies. The frescos include many depictions of people, with the genders distinguished by colour: the men's skin is reddish-brown, the women's white. Bull leaping has become controversial subject matter, some experts say it was an extreme acrobatic act, and some professional bull fighters say such act leaping over bull is not possible at all, and such an act will lead to death in the horns of bull. After careful consideration Wunderlich concludes that it was a religious ritual in which young men and women were allowed to be gored by the bull. Another possibility is that it was something like funeral games as being mentioned by Homer in Ulysses. Funeral games of Homer period are not bull fighting, but it could have been the funeral game of the Knossos.



Influence of this ancient game could be seen even now. Bull fighting and matadors are still popular in Spain and was once popular throughout Mediterranean areas for long time. A remnant of this sport is still popular in Tamil Nadu state, and is still surviving with lot of cultural support and enthusiasm in this state. It is possible that during height of Indus culture period, the bull fighting must have been the popular funeral game of Indus people, and only remnants of this cultural event is surviving in Tamil Nadu. Wunderlich portrays a picture that as if the young men and women

were gored to death as an act of sacrifice. But in Tamil Nadu it is being represented as an act of bravery and entertainment.

Even in the mythological story of Theseus and Minotaur, it is not portrayed as hopeless event. Father of Theseus, king of Athens eagerly awaits the return of his son. That shows the possibility of some person returning alive after participating in the bull fight with Minotaur. King of Athens gives prior direction to his son and captain of the ship that the sail should be changed to white, while returning home, if his son Theseus was alive after the encounter with Minotaur. Because of fate, Theseus forgets about the instruction of his father and returns back with black sails. In an act of absolute sorrow the king commits suicide without knowing the facts, even before the ship could reach the shore. It looks like that Theseus was sailing to Crete with black sail as a sign of grievance to attend some funeral ceremony and bull fighting seems to be part of funeral ceremony. It looks like that the funeral ceremonies and marriage ceremonies acted as important events which bonded the people together in ancient societies.

Language and writing

Knowledge of the spoken and written language of the Minoans is scant, despite the number of records found. Sometimes the Minoan language is referred to as Eteocretan, but this presents confusion between the language written in Linear-A and the language written in a Euboean-derived alphabet after the Greek invasion. While Eteocretan language is suspected to be a descendant of Minoan, there is no substantial evidence for this. It also is unknown whether the language written in Cretan hieroglyphs is Minoan. It is undeciphered and its phonetic values are unknown.

Approximately 3,000 tablets bearing writing have been discovered so far, many apparently being inventories of goods or resources and others inscriptions on religious objects associated with cult. Archaeologists concluded that most of these inscriptions on tablets are concise economic records rather than dedicatory inscriptions; the translation of Minoan language remains a challenge. But Wunderlich gives a contradictory explanation to these tablets. He says that majority of these tablets describe about number of ewes and rams sacrificed in memory of the dead person or offered to the mortuary temple as an act of offering to the God of death. The token with the details of sacrifices made to god is kept along with the mummified body as an evidence to show his devotion to gods. This token was supposed to help the dead person's soul to traverse through the underworld and to be presented before the gods at the time of judgement in the underworld. This explanation of Wunderlich seems to be more logical than that of

the explanation that it was an accountancy record of a sheep herd giving details of number of ewes and rams.

In the Mycenaean period, Linear-A was replaced by Linear-B, recording a very archaic version of the Greek. Linear-B was successfully deciphered by Michael Ventris in the 1950s, but the earlier scripts remain a mystery. Unless Eteocretan truly is its descendant, it is perhaps during the Greek Dark Ages, a time of economic and socio-political collapse, that the Minoan language became extinct.

Religion



The Minoans worshiped goddesses. Although there is some evidence of male gods, depictions of Minoan goddesses vastly outnumber depictions of anything that could be considered a Minoan god. While some of these depictions of women are believed to be images of worshipers and priestesses officiating at religious ceremonies, as opposed to the deity herself, there still seem to be several goddesses including a Mother Goddess of fertility, a Mistress of the Animals, a protectress of cities, the household, the harvest, and the underworld, and more. Some have argued that these are all aspects of a single goddess. They are often represented

by serpents, birds, poppies, and a somewhat vague shape of an animal upon the head. Some suggest the goddess was linked to the "Earth shaker", a male god represented by the bull and the sun. The male god would die each autumn and be reborn each spring. Though the notorious bull-headed Minotaur is a purely Greek depiction, seals and seal impressions reveal bird-headed or masked deities.

Architecture

The Minoan cities were connected with stone-paved roads, formed from blocks cut with bronze saws. Streets were drained and water and sewer facilities were available to the upper class, through clay pipes. Minoan buildings often had flat tiled roofs; plaster, wood, or flagstone floors, and stood two to three stories high. Typically the lower walls were constructed of stone and rubble, and the upper walls of mud brick. Ceiling timbers held up the roofs. The first palaces were constructed at the end of the Early Minoan period in the third millennium BC (Malia). While it was formerly believed that the foundation of the first palaces was synchronous and dated to the Middle Minoan at around 2000 BC (the date of the first palace at Knossos), scholars now think that palaces were built over a longer

period of time in different locations, in response to local developments. The main older palaces are Knossos, Malia, and Phaistos. The palaces fulfilled a plethora of functions; they served as centres of government, administrative offices, shrines, workshops, and storage spaces (e.g., for grain). These distinctions might have seemed artificial to Minoans.

The Secret of Minoan Palaces

The details given in the earlier paragraphs are the descriptions about the Minoan palaces by traditional archaeologists lead by Sir Arthur Evans. Whereas the author of the book “Secret of the Crete” H.G. Wunderlich gives a completely different view and theorizes that it was not a living palace but a funery complex. He further postulates that the dead were buried in a homely environment, with all facilities like a living house. That was the character of the cult of the dead. Modern day archaeologists have mistakenly identified them as palaces for the living. The Wrong notion created by Evans has not been corrected even after many decades. Similar is the case of Indus valley civilisation sites, these sites contained mortuary temples, funeral palaces and funery houses, which had been wrongly identified as metropolis. To bring out the similarities between these two necropolis cultures, this chapter on Minoan culture has been discussed in elaborate way in this book.



During the course of digging at Minoan palace Evans found many Pithoi, which he said were used for storing olive oil and food grains, whereas Wunderlich says that they were funeral jars, in which the dead bodies were kept, for preservation. Later, in the following years the descendents of the dead person used to visit the mortuary temples and pay their respect; simultaneously they used to consult their ancestors for kinds of advices through oracles¹ before taking

Figure 4: Funeral Jars or storage jars?

¹ Oracle: A shrine consecrated to the worship and consultation of a prophetic deity, as that of Apollo at Delphi(or). A person, such as a priestess, through whom a deity is held to respond when consulted.(or)The response given through such a medium, often in the form of an enigmatic statement or allegory. In modern days, the Mediums are operating like olden days

any major decisions. Here the role of priests was that of a medium to consult the dead people's spirit and translate the same to the living persons. It could have provided a good reasonable means of living to those priests. Present day priests have transformed themselves from consultant of the 'dead' to communicator of 'living God'. Because of this total transformation of the religion, we are not able to understand the old way of living. The relevance of this Minoan cult to the present discussion in this book is that in Indus Valley Culture also similar cult might have existed. It is likely that the present day building remains at Mohenjo Daro and Harappa are remnants of funeral complexes and funeral houses.

Decent into the under world

The consultation with dead was wide spread practice at Homeric time and even before that, they were called as oracles in later day classical Greece. This cult of consulting dead reminds of similar events as recorded by Homer in the epic of Odyssey. Ulysses enters under world to consult his dead mother; the narration given by Homer describes in a lively fashion the religious ritual of consulting the dead. Similarly, Hercules also descends into underworld to bring back his friend Iolaus into the living world and succeeds in his efforts. All these stories of heroes visit to underworld bring forth to the mind the nature of religion and custom of the ancient time.

Theories of Minoan demise

Santorini is a small island located about 100 km north of island of Crete. The Santorini eruption occurred around 1600BC and estimated to have had a Volcanic Explosivity Index of 6. This massive volcanic eruption has been identified by ash fallout in eastern Crete and other islands and nearby littoral areas of Aegean Sea and Eastern Mediterranean sea. The massive eruption of Santorini led to the volcano's collapse into a submarine caldera, causing tsunamis which destroyed naval installations and settlements all along the coast of Mediterranean sea. The eruption caused significant climatic changes in the eastern Mediterranean region, Aegean Sea and much of the Northern Hemisphere. There is also evidence that the eruption caused failure of crops in China, inspired certain Greek myths, contributed to turmoil in Egypt, and influenced many of the biblical Exodus

oracles, and claim that they are able to communicate with ghosts of ancestors and get advice from the ghosts for the benefit of the customer.

stories. It is being theorized that the Santorini eruption and the destruction of the city at Akrotiri provided the basis for or otherwise inspired Plato's story of Atlantis.

Significant amount of Minoan remains have been found above the Santorini ash layer, implying that the Santorini eruption did not cause the immediate downfall of the Minoans. As the Minoans were a sea power and depended on their naval and merchant ships for their livelihood, the Santorini eruption likely caused destruction of merchant ships in large scale because of tsunami, resulting in significant economic hardship to the Minoans and probable loss of empire in the long run. Whether these effects were enough to trigger the downfall of the Minoan civilization is under intense debate. The Mycenaean conquest of the Minoans occurred in Late Minoan period, not many years after the eruption, and many archaeologists speculate that the eruption induced a crisis in Minoan civilization, which allowed the Mycenaeans to conquer them easily.

CHAPTER-VI

MEGALITHIC CIVILISATION

A megalith is a large stone which has been used to construct a structure or monument, either alone or together with other stones. Megalithic means structures made of such large stones, utilizing an interlocking system without the use of mortar or cement. The word megalith comes from the Ancient Greek *megas* meaning great, and *lithos* meaning stone. "Megalith" also denotes an item consisting of rock(s) hewn in definite shapes for special purposes. It has been used to describe buildings built by people from many parts of the world living in

many different periods. A variety of large stones are seen as megaliths and the purpose of these megaliths have not been properly defined. Many of the megaliths could have served as some kind of religious monuments, some of them have been used for astronomical observation and many were used as tombs. The construction of these structures took place mainly in the Neolithic (though earlier Mesolithic examples are known) and continued into the Copper Age and Bronze Age.

At number of sites in eastern Turkey, large ceremonial complexes from the 9th millennium BC have been discovered. They belong to the incipient phases of agriculture and animal husbandry, from which the European (or Western) Neolithic civilization would later develop. Large circular structures involving carved megalithic stones are a typical feature, e.g. at Nevalı Cori and Gobekli Tepe. These structures are the most ancient megalithic structures known so far, it shows that the megalithic culture started from here and spread everywhere throughout the world. At Gobekli Tepe four stone circles have been excavated which have a diameter of 20 to 30 metres. The stones carry carved reliefs of boars, foxes, lions, birds, snakes and scorpions. Note that this megalithic culture origin centre is in accordance with Renfrew's and Anatolian origin theory.

European megaliths

The most common type of megalithic construction in Europe is the dolmen. Dolmen is a chamber constructed with upright stones (orthostats) with one or more large flat capstones forming a roof. Many of these, though by no means all, contain human remains, but it is generally believed that these dolmens were used as burial sites and it was their primary function. It is assumed that most dolmens were



Figure 5: Dolmen

originally covered by earthen mounds. The second most common tomb type is the passage grave. It normally consists of a square, circular or cruciform chamber with a slabbed or corbelled roof, accessed by a long, straight passageway, with the whole structure covered by a circular mound of earth. Sometimes it is also surrounded by an external stone kerb. The third tomb type is a diverse group known as gallery graves. These are axially arranged chambers placed under elongated mounds. The Irish court tombs and

British long barrows belong to this group.

Another type of megalithic monument is the single standing stone, or menhir. Some of these are thought to have an astronomical function as a marker or foresight and in some areas long and complex alignments of such stones exist, for example at Carnac in Brittany. In parts of Britain and Ireland the best known type of megalithic construction is the stone circle, of which there are hundreds of examples, including Stonehenge, Avebury, Ring of Brodgar and Beltany. These too display evidence of astronomical alignments, both solar and lunar. Stonehenge, for example, is famous for its solstice alignment. Examples of stone circles are also found in the rest of Europe. They are normally assumed to be of later date than the tombs, straddling the Neolithic and the Bronze Age.

Tombs

Megalithic tombs are aboveground burial chambers, built of large stone slabs (**megaliths**) laid on edge and covered with earth or other, smaller stones. They are a type of chamber tomb, and the term is used to describe the structures built across Atlantic Europe, the Mediterranean and neighbouring regions, mostly during the Neolithic period, by Neolithic farming communities. They differ from the contemporary long barrows through their structural use of stone. There is a huge variety of megalithic tombs. The free-standing single chamber dolmens and portal dolmens found in Brittany, Denmark, Germany, Ireland, Netherlands, Sweden, Wales and elsewhere consist of a large flat stone supported by three, four or more standing stones. They were covered by a stone cairn or earth barrow.

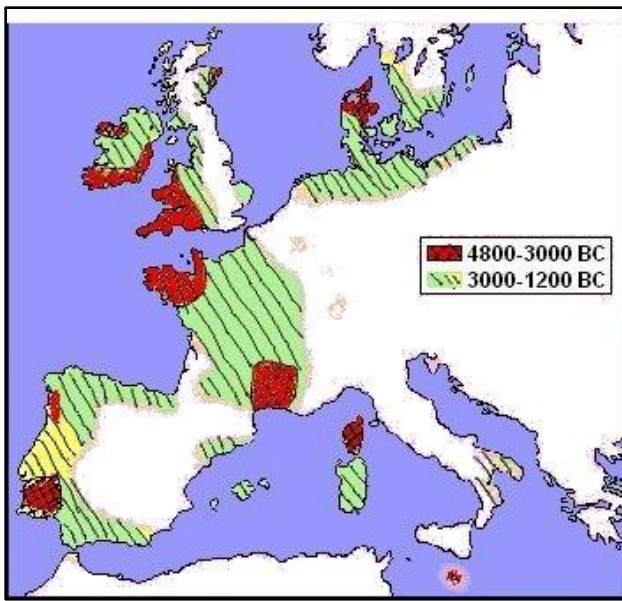
Examples with outer areas, not used for burial, are also known. The Court Cairns of south west Scotland and northern Ireland, the Severn-Cotswold tombs of south west England and the Transepted gallery graves of the Loire region in France share many internal features although the links between them are not yet fully understood. That they often have antechambers or forecourts is thought to imply a desire on the part of the builders to emphasise a special ritual or physical separation of the dead from the living. Megalithic tombs appear to have been used by communities for the long-term deposition of the remains of their dead and some seem to have undergone alteration and enlargement. The organisation and effort required to erect these large stones mean that the societies concerned must have placed great emphasis on the proper treatment of their dead. The ritual significance of the tombs is supported by the presence of megalithic art carved into the stones at some sites. Hearths and deposits of pottery and animal bone found by archaeologists around some tombs also implies some form of burial feast or sacrificial rites took place there. (wikipedia)

Other structures

Associated with the megalithic constructions across Europe there are often large earthworks of various designs like ditches and banks, broad terraces, circular enclosures known as henges, and frequently artificial mounds such as Silbury Hill in England. Sometimes, as at Glastonbury Tor in England, it is suggested that a natural hill has been artificially sculpted to form a maze or spiral pattern in the turf. Spirals were evidently an important motif for the megalith builders, and have been found carved into megalithic structures all over Europe, along with other symbols such as lozenges, eye-patterns, zigzags in various configurations, and cup and ring marks. These motifs are not a written script in the modern sense of the term but these symbols have conveyed meaning to their creators, and are remarkably consistent across the whole of Western Europe. (Wikipedia)

Spread of megalithic architecture in Europe

In Western Europe and the Mediterranean, megaliths are generally constructions erected during the Neolithic or Stone Age and Copper Age (4500-1500 BC). Perhaps the most famous megalithic structure is Stonehenge in England, although many others are known throughout the world. In France, the tallest megalithic stone is found at Carnac in Brittany province in France. The stone has been deliberately knocked down and has broken into three pieces by the later day religious zealots. The spread of megalithic sites shown in the map reveals an important fact. Note that the earliest spread of megalithic culture (around the year 4800-3000 BC) are in the islands of Malta, Corsica and regions around Marseilles, Brittany, Cornwall, Wales, Southern Ireland and Northern Denmark. This spread along the coast of Western Europe show that this megalithic culture was spread by maritime civilisations and had spread far and wide. It is likely that this megalithic culture started in the Anatolian high lands and spread to the coasts of Anatolia and Lebanon in the



initial stage and later had spread all over the coastal areas of Mediterranean seas and Atlantic coast. Extrapolation of this fact to some more extent shows the possibility that the megalithic monuments at Meso America (Mexico and other countries of Middle America) also could be the work of Neolithic farmers from European coastal area.

Map 7 , Megalithic Architecture – Spread

Middle Eastern megaliths

Dolmens and standing stones have been found in large areas of the Middle East starting at the Turkish border in the north of Syria close to Aleppo, southwards down to Yemen. They can be encountered in northern Lebanon, southern Syria Israel, Jordan and Saudi Arabia. The most concentrated occurrence of dolmen in particular is in a large area on both sides of the Great Rift Valley, with greater predominance on the eastern side. They occur first and foremost on the Golan Heights, Haran and in Jordan which probably has the largest concentration of dolmen in the Middle East. In Saudi Arabia only very few dolmen have been identified so far in the Hejaz. They seem to re-emerge in Yemen in small numbers and thus could indicate a continuous tradition related to those of Somalia and Ethiopia. The standing stone has a very ancient tradition in the Middle East, dating back from Mesopotamian times. Although not always 'megalithic' in the true sense, they occur throughout the Orient, and can reach 5 meters or more in some cases (such as Ader in Jordan). This phenomenon can also be traced through many passages from the Old Testament, such as those related to Jacob, the grandson of Abraham, who poured oil over a stone which he erected after his famous dream in which angels climbed to heaven (Genesis 28:10-22). Jacob also put up stones at other occasions, whereas Moses erected twelve pillars symbolizing the tribes of Israel. The tradition of venerating (standing) stones continued in Nabataean times and is e.g. reflected in the Islamic rituals surrounding the Kabala and nearby pillars. Related phenomena, such as cup holes, rock-cut tombs and circles also occur in the Middle East. (wikipedia)

Analysis and evaluation

Megaliths were used for a variety of purposes. The purpose of megaliths ranged from serving as boundary markers of territory, to a reminder of past events,

to being part of the society's religion. Common motifs including crooks and axes seem to be symbols of political power, much like the crook was a symbol of Egyptian pharaohs. Amongst the indigenous peoples of India, Malaysia, Polynesia, North Africa, North America, and South America, the worship of these stones, or the use of these stones to symbolize a spirit or deity, is a possibility. In the early 20th century, some scholars believed that all megaliths belonged to one global "Megalithic culture" (hyper diffusionism, e. g. 'the Manchester school', by Grafton Elliot Smith and William James Perry), but this has not been accepted by archaeologists because of dating problems. But general distribution and similarities of this megalith culture shows a common origin and shared cultural values and the oldest civilized society and it is in conformity with Renfrew model.

Anatolia

On the Anatolian peninsula, there are several sites where one can find the biggest specimens of these artificial mounds throughout the world. Three of these sites are especially important. Bin Tepeler (and other Lydian mounds is Menisa province, East of Izmir city), Phrygian mounds in Gordium (Central Anatolia), and the famous Commagene tumulus on the Mount Nemrut (South-eastern Anatolia). The most important site is called "Bin Tepeler" (a thousand mounds in Turkish) and it is in the northwest of Salihli district of Manisa province. The site is very close to the southern shoreline of Lake Marmara (Lake Gyges or Gygaea). Bin Tepeler is a Lydian necropolis which dates back to 7th and 6th centuries B.C. These mounds are called "the pyramids of Anatolia" as there is even a giant specimen among them which attains 355 meters in diameter, 1115 meters in perimeter and 69 meters of height. According to the accounts drawn up by Herodotus, this giant tumulus belongs to the famous Lydian King Alyattes II who ruled between 619–560 B.C. There is also another mound belonging to King Gyges. The Gyges mound was excavated but the burial chamber hasn't been found yet. In this site, there are 75 tumuli dating back to Lydian period which belong to the nobility. A large number of smaller artificial mounds can also be observed in the site.

Gordium is the capital of the Phrygian Kingdom. Its ruins are in the immediate vicinity of Polati district of the Turkish capital Ankara. In this site, there are approximately 80-90 tumuli which date back to Phrygian, Persian and Hellenistic periods. Only 35 tumuli were excavated so far. The mounds had been built between 8th century B.C. and 3rd or 2nd century B.C. The biggest tumulus in the site is believed to belong to the famous Phrygian King Midas. This mound had

been excavated in 1957 and several bronze artefacts were collected from the wooden burial chamber.

The Mount Nemrut is 86 km in the east of Adiyaman province of Turkey. The mountain has, at its peak, 3050 meters of height above the sea level. A tumulus which dates back to the 1st century B.C. is situated at the peak of the mountain. This artificial mound has 150 meters of diameter and a height of 50 meters which was originally 55 meters. It belongs to the King Antiochus I Theos of Commagene who ruled between 69–40 B.C. The most interesting thing about the tumulus is that it is made of broken stone pieces which render the excavation attempts almost impossible. The tumulus is surrounded by ceremonial terraces in the east, west and north. The east and west terraces have tremendous statues (reaching 8 to 10 meters of height) and bas reliefs of gods and goddesses from the Commagene pantheon where divine figures used to embody the Persian and Roman perceptions together.

Catal Huyuk

Catal Huyuk (Catal is Turkish for "fork", Huyuk for "mound") was a large Neolithic and copper age settlement in southern Anatolia, c 7500-5700 BCE. It is the largest and best preserved Neolithic site found to date. Catal Huyuk is located overlooking wheat fields in the Konya Plain, southeast of the present-day city of Konya (ancient Iconium) in Turkey, approximately 140 km from the twin-coned volcano of Hasan Dag. The eastern settlement forms a mound which would have risen about 20 m (66 ft) above the plain at the time of the latest Neolithic occupation. The prehistoric mound settlements were abandoned before the Bronze Age. A channel of the Carsamba River once flowed between the two mounds, and the settlement was built on alluvial clay which may have been favourable for early agriculture. (Wikipedia)

First discovered in 1961, the Catal Huyuk site was brought to worldwide attention by James Mellaart's excavations between 1961 and 1965, which revealed this section of Anatolia as a centre of advanced culture in the Neolithic period. Mellaart was banned from Turkey for his involvement in the Dorak affair in which he published drawings of supposedly important Bronze Age artefacts that later went missing. After this scandal, the site lay idle until 1993, when investigations began under the leadership of Ian Hodder then at the University of Cambridge. These investigations are among the most ambitious excavation projects currently in progress. In addition to extensive use of archaeological, psychological and artistic interpretations of the symbolism of the wall paintings have also been employed. The entire settlement of Catal Huyuk was

composed of domestic buildings; the site has no obvious public buildings. While some of the larger buildings contain rather ornate wall murals, the purpose of such rooms remains unclear.

The population of the eastern mound has been estimated at up to 10,000 people, but population totals likely varied over the community's history. An average population of 5,000 to 8,000 is a reasonable estimate. The inhabitants lived in mud-brick houses which were crammed together in an agglutinative manner. No footpaths or streets were used between the dwellings, which were clustered in a honeycomb-like maze. Most were accessed by holes in the ceiling, which were reached by interior and exterior ladders and stairs. Thus, their rooftops were their streets. The ceiling openings also served as the only source of ventilation, letting in fresh air and allowing smoke from open hearths and ovens to escape. Houses had plaster interiors characterized by squared off timber ladders or steep stairs, usually placed on the south wall of the room, as were cooking hearths and ovens. Each main room served as an area for cooking and daily activities. The main rooms contained raised platforms that may have been used for a range of domestic activities. All interior walls and platforms were plastered to a smooth finish. Ancillary rooms were used as storage, and were accessed through low entry openings from main rooms. All rooms were kept scrupulously clean. Archaeologists identified very little trash or rubbish within the buildings, but found that trash heaps outside the ruins contain sewage and food waste as well as significant amounts of wood ash. In good weather, many daily activities may also have taken place on the rooftops, which conceivably formed an open air plaza. In later periods, large communal ovens appear to have been built on these rooftops. Over time, houses were renewed by partial demolition and rebuilding on a foundation of rubble—which was how the mound became built up. Up to eighteen levels of settlement have been uncovered. (Wikipedia)

The people of Catal Huyuk buried their dead within the village. Human remains have been found in pits beneath the floors, and especially beneath hearths, the platforms within the main rooms and under the beds. The bodies were tightly flexed before burial, and were often placed in baskets or wrapped in reed mats. Disarticulated bones in some graves suggest that bodies may have been exposed in the open air for a time before the bones were gathered and buried. In some cases, graves were disturbed and the individual's head removed from the skeleton. These heads may have been used in ritual, as some were found in other areas of the community. Some skulls were plastered and painted with ochre to recreate human-like faces, a custom more characteristic of Neolithic sites in Syria and at Neolithic Jericho than at sites closer by.

Vivid murals and figurines are found throughout the settlement, on interior and exterior walls. Distinctive clay figurines of women have been found in the upper levels of the site. Although no identifiable temples have been found, the graves, murals, and figurines suggest that the people of Catal Huyuk had a religion that was rich in symbol. Rooms with concentrations of these items may have been shrines or public meeting areas. Predominant images include men with erect phalluses, hunting scenes, red images of the now extinct aurochs (wild cattle) and stags, and vultures swooping down on headless figures. Relief figures are carved out of the walls, such as the depiction of lionesses facing one another.

In upper levels of the site, it becomes apparent that the people of Catal Huyuk were gaining skills in agriculture and the domestication of animals. Female figurines have been found within bins used for storage of cereals such as wheat and barley that are presumed to be a deity protecting the grain. Peas were also grown, and almonds, pistachios, and fruit were harvested from trees in the surrounding hills. Sheep were domesticated and evidence suggests the beginning of cattle domestication as well. However, hunting continued to be a major source of meat for the community. The making of pottery and the construction of obsidian tools were major industries. Obsidian tools were probably both used and traded for items such as Mediterranean Sea shells and flint from Syria. A striking feature of Catal Huyuk is its female figurines. Mellaart, the original excavator, argued that these well-formed, carefully made figurines, carved and moulded from marble, blue and brown limestone, schist, calcite, basalt, alabaster, and clay, represented a female deity of the Great Goddess type. Although a male deity existed as well, statues of a female deity far outnumber those of the male deity. (Wikipedia)

Critical evaluation of catalhuyuk

The above given narration of Catal Huyuk is the traditional explanation, but leaves some peculiar unacceptable interpretations for the buildings. Note for example the interpretation that no footpaths or streets were found and most of the houses were accessed through holes in the ceilings of the rooms. Is it possible to live in such a house ? This interpretation is wrong and misleading. The correct explanation is that they were rooms built for burial purpose and dead persons were buried in rooms constructed for their comfortable living in their after life. But archaeologists are mistakenly identifying them as living quarters. The same interpretation is being offered for Indus sites also which are being elaborated in the later portion of this book. But the earliest existing example is Catal Hayuk, which was constructed around 9000 BC, which is much earlier than the period assigned to Indus culture, which is around 3000 to 1500 BC. In all probability, the Catal

Hayuk is precursor to Indus site and most probably this Catal Hayuk culture had spread to Indus Valley through Sumeria and Iran.

CHAPTER-VII

SUMERIAN CIVILISATION

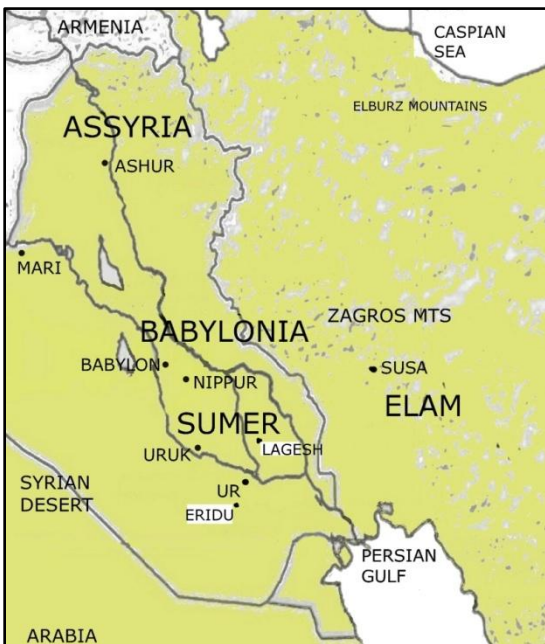
Sumer was a civilization and a historical region located in southern Iraq (Mesopotamia), known as the Cradle of civilization. It lasted from the first settlement of Eridu in the Ubaid period (late 6th millennium BC) through the Uruk period (4th millennium BC) and the Dynastic periods (3rd millennium BC) until the rise of Babylon in the early 2nd millennium BC. The term "Sumerian" applies to all speakers of the Sumerian language. Although other cities of the Middle East pre-date Sumer (Jericho, Catal Huyuk and others), the cities of Sumer were the first to practice intensive, year-round agriculture (from ca. 5300 BC). The surplus of storable food created by this economy allowed the population to settle in one place instead of migrating after crops and grazing land. It also allowed for a much greater population density, and in turn required an extensive labour force and division of labour. This organization led to the necessity of record keeping and the development of writing (ca. 3500 BC).

Origin of name

The term "Sumerian" is the common name given to the ancient inhabitants of southern Mesopotamia by their successors, the Semitic Akkadians. The Sumerians called themselves sag-giga, literally meaning "the black-headed people". The Akkadian word Shumer may represent this name in dialect, but it is unknown why the Akkadians called the southern land Shumeru. Biblical Shinar, Egyptian Sngr and Hittite Sanhar (a) could be western variants of Sumer. By the late 4th millennium BC, Sumer was divided into about a dozen independent city-states, (just like later day Greek city states) whose limits were defined by canals and boundary stones. Each was centred on a temple dedicated to the particular patron god or goddess of the city and ruled over by a priestly governor (ensi) or by a king (lugal) who was intimately tied to the city's religious rites.

History

The Sumerian city states rose to power during the prehistorical Ubaid and Uruk periods. Sumerian history reaches back to the 26th century BC and before, but the historical record remains obscure until the Dynastic Period, ca. the 23rd century BC, when a syllable writing system (now deciphered) was developed. This syllable writing system has been deciphered now and the deciphering has allowed archaeologists to read contemporary records and inscriptions. Classical Sumer ends with the rise of the Akkadian Empire in the



Map 8: Map of Sumeria

23rd century. Following the Gutian period, there is a brief "Sumerian renaissance" in the 21st century, cut short in the 20th century BC by Amorite invasions. The Amorite "dynasty of Isin" persisted until ca. 1700 BC, when Mesopotamia was united under Babylonian rule.

Ubaid period

The Ubaid period is marked by a distinctive style of fine quality painted pottery, which had spread throughout Mesopotamia and the Persian Gulf. During

this time, the first settlement in southern Mesopotamia was established at Eridu, ca. 5300 BC, by farmers who brought with them the Samarran culture from northern Mesopotamia. It is not known whether or not these were the actual Sumerians who are identified with the later Uruk culture. Eridu remained an important religious centre when it was gradually surpassed in size by the nearby city of Uruk.

Name of the period	Duration of Period	Extent of the period in number of years	Description
Ubaid period	5300-4100BC	1200	Neolithic Age to Copper Age, First city Eridu
Uruk period	4100-2900BC	1200	Copper age to early Bronze Age
Dynastic period	2900-2300BC	600	Gilgamesh belongs to this period
	2700 BC		Beginning of Historic records in decipherable syllabic writing
Akkadian Empire	2300-2200 BC	100	Sargon belongs to this period
Gutian empire	2200-2000BC	200	Bronze Age
Ur period	2000-1940BC	100	Ur nammu and his big ziggurat
	1800 BC		Sumerian Language ceased to be a spoken language

Table 5: Sumerian chronology

Uruk period

The archaeological transition from the Ubaid period to the Uruk period is marked by a gradual shift from painted pottery domestically produced on a slow wheel, to a great variety of unpainted pottery mass-produced by specialists on fast wheels. By the time of the Uruk period, the volume of trade goods transported along the canals and rivers of southern Mesopotamia facilitated the rise of many large stratified, temple-centred cities (with populations of over 10,000 people) where centralized administrations employed specialized workers. It is fairly certain that it was during the Uruk period that Sumerian cities began to make

use of slave labour captured from the hill country, and there is ample evidence for captured slaves as workers in the earliest texts. Artefacts, and even colonies of this Uruk civilization have been found over a wide area—from the Taurus Mountains in Turkey, to the Mediterranean in the west, and as far east as Central Iran.

The Uruk period civilization, exported by Sumerian traders and colonists had an effect on all surrounding peoples, who gradually evolved their own comparable, competing economies and cultures. The cities of Sumer could not maintain remote, long-distance colonies by military force. Sumerian cities during the Uruk period were probably theocratic and were most likely headed by a priest-king (*ensi*), assisted by a council of elders, including both men and women. It is quite possible that the later Sumerian pantheon was modelled upon this political structure. The ancient Sumerian king list includes the early dynasties of several prominent cities from this period. The first set of names on the list is of kings said to have reigned before a major flood occurred. These early names may be fictional, and include some legendary and mythological figures, such as Alulim and Dumizid.

Early Dynastic Period

The Dynastic period begins around 2900 BC and includes such legendary figures like Gilgamesh, who are supposed to have reigned shortly before the historic record opens ca. 2700 BC, when the now decipherable syllabic writing started to develop from the early pictograms. The centre of Sumerian culture remained in southern Mesopotamia, even though rulers soon began expanding into neighbouring areas, and neighbouring Semitic groups adopted much of Sumerian culture for their own. The earliest Dynastic king on the Sumerian king list whose name is known from any other legendary source is Etana, 13th king of the first Dynasty of Kish. The earliest king authenticated through archaeological evidence is Enmebaragesi of Kish (ca. 26th century BC), whose name is also mentioned in the Gilgamesh epic, leading to the suggestion that Gilgamesh himself might have been a historical king of Uruk.

Dynasty of Lagash

The dynasty of Lagash, though omitted from the king list, is well attested through several important monuments and many archaeological finds. Although short-lived, one of the first empires known to history was that of Eannatum of Lagash, who annexed practically all of Sumer, including Kish, Uruk, Ur, and Larsa, and reduced to tribute the city-state of Umma, arch-rival of Lagash. In

addition, his realm extended to parts of Elam and along the Persian Gulf. He seems to have used terror as a matter of policy—his stele of the vultures has been found, showing violent treatment of enemies. His empire collapsed shortly after his death. Later, Lugal-Zage-Si, the priest-king of Umma, overthrew the primacy of the Lagash dynasty in the area, then conquered Uruk, making it his capital, and claimed an empire extending from the Persian Gulf to the Mediterranean. He was the last ethnically Sumerian king before the arrival of the Semitic king, Sargon.

Akkadian Empire

The Semitic Akkadian language is first attested in proper names of the kings of Kish ca. 2800 BC preserved in later king lists. There are texts written entirely in Old Akkadian dating from ca. 2500 BC. Use of Old Akkadian was at its peak during the rule of Sargon the Great (ca. 2270 – 2215 BC), but even then most administrative tablets continued to be written in Sumerian, the language used by the scribes. Speakers of Akkadian and Sumerian coexisted for about one thousand years, until ca. 1800 BC, when Sumerian ceased to be spoken.

Gutian period

Following the downfall of the Akkadian Empire at the hands of Gutians, another native Sumerian ruler, Gudea of Lagash, rose to local prominence and continued the practices of the Sargonid kings' claims to divinity. Like the previous Lagash dynasty, Gudea and his descendents also promoted artistic development and left a large number of archaeological artefacts.

Sumerian renaissance

Later, the 3rd dynasty of Ur under Ur-Nammu and Shulgi, whose power extended as far as northern Mesopotamia, was the last great "Sumerian renaissance", but already the region was becoming more Semitic than Sumerian, with the influx of waves of Martu (Amorites) who were later to found the Babylonian Empire. The Sumerian language, however, remained a sacerdotal language taught in schools, in the same way that Latin was used in the medieval period, for as long as cuneiform was utilised. (wikipedia)

Decline

This period is generally taken to coincide with a major shift in population from southern Iraq towards the north. Ecologically, the agricultural productivity of the Sumerian lands was being compromised as a result of rising salinity. Soil salinity in this region had been long recognized as a major problem. Poorly drained irrigated soils, in an arid climate with high levels of evaporation, led to the build-up of dissolved salts in the soil, eventually reducing agricultural yields severely. During the Akkadian and Ur periods, there was a shift from the cultivation of wheat to the more salt-tolerant barley, but this was insufficient, and during the period from 2100 BC to 1700 BC, it is estimated that the population in this area declined by nearly 3/5ths. This greatly weakened the balance of power within the region, weakening the areas where Sumerian was spoken, and comparatively strengthening those where Akkadian was the major language. Henceforth Sumerian would remain only a literary and liturgical language, similar to the position occupied by Latin in medieval Europe.

Following an Elamite invasion and sack of Ur during the rule of Ib-bi-Sin (ca. 1940 BC), Sumer came under Amorite rule (taken to introduce the Middle Bronze Age). The independent Amorite states of the 20th to 18th centuries are summarized as the "Dynasty of Isin" in the Sumerian king list, ending with the rise of Babylonia under Hammurabi ca. 1700 BC. (wikipedia)

Population

First farmers from Samarra arrive in Sumer, and build shrine and settlement at Eridu. The Sumerians were a non-Semitic people and were at one time believed to have been invaders, as a number of linguists believed they could detect a substrate language beneath Sumerian. However, the archaeological evidences show clear uninterrupted cultural continuity from the time of the Early Ubaid period (5300 – 4700 BC) settlements in southern Mesopotamia. The Sumerian people who settled here farmed the lands in this region that were made fertile by silt deposited by the Tigris and the Euphrates rivers.

Despite the lack of corroborating written records, it is generally agreed that Sumerian speakers were farmers who moved down from the north, after perfecting irrigated agriculture there. The Ubaid pottery of southern Mesopotamia has been connected to the pottery of the Samarra period culture (c. 5700 – 4900 BC) in the north, who were the first to practice a primitive form of irrigation agriculture along the middle Tigris River and its tributaries. The

connection is most clearly seen at Tell Awayli (Oueilli, Oueili) near Larsa, excavated by the French in the 1980s, where 8 levels yielded pre-Ubaid pottery resembling Samarran ware. Farming peoples spread down into southern Mesopotamia because they had developed a temple-centred social organization for mobilizing labour and technology for water control, enabling them to survive and prosper in a difficult environment.

Alternatively, the Sumerians may have been an indigenous culture of hunter-fishers who lived in the reedy marshlands at the mouth of the Tigris and Euphrates Rivers, as the Marsh Arabs do today. This culture contributed to a cultural fusion with northern agriculturists, creating Sumerian language and civilisation.

Culture

Sumerian culture may be traced to two main centres, Eridu in the south and Nippur in the north may be regarded as contrasting poles of Sumerian religion. The deity Enlil, around whose sanctuary Nippur had grown up, was considered lord of the ghost-land, and his gifts to mankind were said to be the spells and incantations that the spirits of good or evil were compelled to obey. The world he governed was a mountain (E-kur from E=house and Kur=Mountain); the creatures that he had made lived underground.

Eridu, on the other hand, was the home of the culture god Enki (absorbed into Babylonian mythology as the god Ea), the god of beneficence, ruler of the freshwater depths beneath the earth (the Abzu from Ab=water and Zu=far), a healer and friend to humanity who was thought to have given us the arts and sciences, the industries and manners of civilization; the first law-book was considered his creation. Eridu had once been a seaport, and it was doubtless its foreign trade and intercourse with other lands that influenced the development of its culture. Its cosmology was the result of its geographical position: the earth, it was believed, had grown out of the waters of the deep, like the ever widening coast at the mouth of the Euphrates. Long before history is recorded, however, the cultures of Eridu and Nippur had coalesced. While Babylon seems to have been a colony of Eridu, Eridu's immediate neighbour, Ur, may have been a colony of Nippur, since its moon god was said to be the son of Enlil of Nippur. However, in the admixture of the two cultures, the influence of Eridu was predominant.

There is much evidence that the Sumerians loved music. It seemed to be an important part of religious and civic life in Sumer. Lyres were popular in Sumer. According to inscriptions describing the reforms of king Urukagina of Lagash (ca. 2300 BC), he is said to have abolished the former custom

of polyandry in his country, on pain of the woman taking multiple husbands being stoned with rocks upon which her crime is written. Though women were protected by late Sumerian law and were able to achieve a higher status in Sumer than in other contemporary civilizations, the culture was male-dominated. The Code of Ur, the oldest such codification yet discovered, dating to the Ur period "Sumerian Renaissance", reveals a glimpse at societal structure in late Sumerian law.

Language and writing

The most important archaeological discoveries in Sumer are a large number of tablets written in Sumerian. Sumerian pre-cuneiform script has been discovered on tablets dating to around 3500 BC. The Sumerian language is generally regarded as a language isolate in linguistics because it belongs to no known language family; Akkadian belongs to the Afro-Asiatic languages. There have been many failed attempts to connect Sumerian to other language groups. It is an agglutinative language; in other words, morphemes ("units of meaning") are added together to create words. Sumerians invented picture-hieroglyphs that developed into later cuneiform, and their language vies with Ancient Egyptian for credit as the oldest known written human language. An extremely large body of hundreds of thousands of texts in the Sumerian language has survived. the great majority of these on clay tablets Known Sumerian texts include personal and business letters and transactions, receipts, lexical lists, laws, hymns and prayers, magical incantations, and scientific texts including mathematics, astronomy, and medicine. Monumental inscriptions and texts on different objects like statues or bricks are also very common. Many texts survive in multiple copies because they were repeatedly transcribed by scribes-in-training. Sumerian continued to be the language of religion and law in Mesopotamia long after Semitic speakers had become the ruling race. Understanding Sumerian texts today can be problematic even for experts. Most difficult are the earliest texts, which in many cases don't give the full grammatical structure of the language.

Religion

Like other cities of Asia Minor and the Mediterranean, Sumer was a polytheistic, or henotheistic, society. Their lives were spent serving the gods in the form of man-made statues. There was no organized set of gods; each city-state had its own patrons, temples, and priest-kings. The Sumerians were probably the first to write down their beliefs, which were the inspiration for much of later Mesopotamian mythology, religion, and astrology. The Sumerian gods had

associations with different cities, and their religious importance often waxed and waned with those cities' political power. The gods were said to have created human beings from clay for the purpose of serving them. If the temples/gods ruled each city it was for their mutual survival and benefit—the temples organized the mass labour projects needed for irrigated agriculture. Citizens had a labour duty to the temple which they were allowed to avoid by a payment of silver only towards the end of the third millennium. The temple-centred farming communities of Sumer had a social stability that enabled them to survive for four millennia.

Sumerians believed that the universe consisted of a flat disk enclosed by a tin dome. The Sumerian afterlife involved a descent into a gloomy netherworld to spend eternity in a wretched existence as a *Gadim* (ghost). Ziggurats (Sumerian temples) consisted of a forecourt, with a central pond for purification. The temple itself had a central nave with aisles along either side. Flanking the aisles would be rooms for the priests. At one end the podium would stand a mud brick table for animal and vegetable sacrifices. Granaries and storehouses were usually located near the temples. After a time the Sumerians began to place the temples on top of multi-layered square constructions built as a series of rising terraces, giving rise to the later Ziggurat style.

Agriculture and hunting

The Sumerians adopted the agricultural mode of life which had been introduced into Lower Mesopotamia and practiced the same irrigation techniques as those used in Egypt. Adams says that irrigation development was associated with urbanization, and that majority portion of the population lived in the cities. They grew barley, chickpeas, lentils, wheat, dates, onions, garlic, lettuce, leeks and mustard. They also raised cattle, sheep, goats, and pigs. They used oxen as their primary beasts of burden and donkeys or equids as their primary transport animal. Sumerians caught many fish and hunted fowl and gazelle. Sumerian agriculture depended heavily on irrigation. The irrigation was accomplished by the use of shadufs, canals, channels, dykes, weirs, and reservoirs. The frequent violent floods of the Tigris, and less so, of the Euphrates, meant that canals required frequent repair and continual removal of silt, and survey markers and boundary stones continually replaced. The government required individuals to work on the canals in a *corvee*, although the rich were able to exempt themselves.

After the flood season and after the Spring Equinox and the Akitu or New Year Festival, using the canals, farmers would flood their fields and then drain the water. Next they let oxen stomp the ground and kill weeds. They then dragged the fields with pickaxes. After drying, they ploughed, harrowed, and

raked the ground three times, and pulverized it with a mattock, before planting seed. Unfortunately the high evaporation rate resulted in a gradual increase in the salinity of the fields. By the Ur period, farmers had switched from wheat to the more salt-tolerant barley as their principal crop. Sumerians harvested during the dry fall season in three-person teams consisting of a reaper, a binder, and a sheaf arranger. The farmers would use threshing wagons to separate the cereal heads from the stalks and then use threshing sleds to disengage the grain. They then winnowed the grain/chaff mixture.

Architecture

The Tigris-Euphrates plain lacked minerals and trees. Sumerian structures were made of plano-convex mud brick, not fixed with mortar or cement. Mud-brick buildings eventually deteriorate, so they were periodically destroyed, levelled, and rebuilt on the same spot. This constant rebuilding gradually raised the level of cities, which thus came to be elevated above the surrounding plain. The resultant hills, known as tells, are found throughout the ancient Near East. The most impressive and famous of Sumerian buildings are the ziggurats, large layered platforms which supported temples. Some scholars have theorized that these structures might have been the basis of the Tower of Babel described in Genesis. Sumerian cylinder seals also depict houses built from reeds not unlike those built by the Marsh Arabs of Southern Iraq until as recently as 400 AD. The Sumerians also developed the arch, which enabled them to develop a strong type of roof called a dome. They built this by constructing several arches. Sumerian temples and palaces made use of more advanced materials and techniques, such as buttresses, recesses and half columns.

Economy and trade

Discoveries of obsidian from far-away locations in Anatolia and lapis lazuli from north-eastern Afghanistan, beads from Dilmun (modern Bahrain), and several seals inscribed with the Indus script suggest a remarkably wide-ranging network of ancient trade centred around the Persian Gulf. The Epic of Gilgamesh refers to trade with far off lands for goods such as wood that were scarce in Mesopotamia. In particular, cedar from Lebanon was prized. The Sumerians used slaves, although they were not a major part of the economy. Slave women worked as weavers, pressers, millers, and porters. Sumerian potters decorated pots with cedar oil paints. The potters used a bow drill to produce the

fire needed for baking the pottery. Sumerian masons and jewellers knew and made use of alabaster (calcite), ivory, gold, silver, carnelian and lapis lazuli.

Legacy

Most authorities credit the Sumerians with the invention of the wheel, initially in the form of the potter's wheel. The new concept quickly led to wheeled vehicles and mill wheels. The Sumerians' cuneiform writing system is the oldest for which there is evidence. The Sumerians were among the first astronomers, mapping the stars into sets of constellations, many of which survived in the zodiac and were also recognized by the ancient Greeks. The five planets that are visible to the naked eye have Sumerian names.

They invented and developed arithmetic by doing several different number systems including a mixed radix system with an alternating base 10 and base 6. This sexagesimal (based on total of 60) system became the standard number system in Sumer and Babylonia. They may have invented military formations and introduced the basic divisions between infantry, cavalry and archers. They developed the first known codified legal and administrative systems, complete with courts, jails, and government records. The first true city states arose in Sumer, roughly contemporaneously with similar entities in what is now Syria and Israel. Several centuries after the invention of cuneiform, the use of writing expanded beyond debt/payment certificates and inventory lists to be applied for the first time, about 2600 BC, to messages and mail delivery, history, legend, mathematics, astronomical records and other pursuits. Conjointly with the spread of writing, the first formal schools were established, usually under the auspices of a city-state's primary temple. Finally, the Sumerians ushered in the age of intensive agriculture and irrigation. Emmer wheat, barley, sheep and cattle were foremost among the species cultivated and raised for the first time on a grand scale.

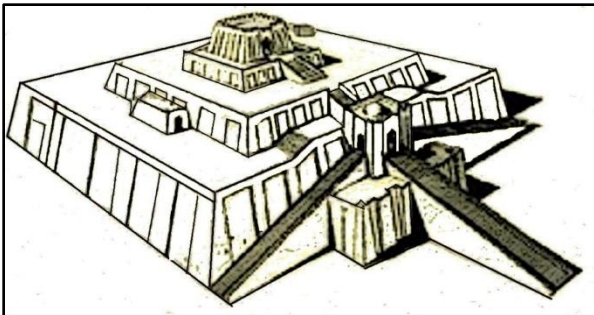


Figure 6: Ziggurat.

Ziggurat at Ur

A ziggurat “to build on a raised area” is a temple tower of the ancient Mesopotamian valley and Iran, having the form of a terraced pyramid of successively receding stories. Ziggurats were a form of temple common to the

Sumerians, Babylonians and Assyrians of ancient Mesopotamia. The earliest examples of the ziggurat date from the end of the third millennium BC and the latest date from the 6th century BC. Built in receding tiers upon a rectangular, oval, or square platform, the ziggurat was a pyramidal structure. Sun-baked bricks made up the core of the ziggurat with facings of fired bricks on the outside. The facings were often glazed in different colours and might have had astrological significance. The number of tiers ranged from two to seven, with a shrine or temple at the summit. Access to the shrine was provided by a series of ramps on one side of the ziggurat or by a spiral ramp from base to summit.

Notable examples of this structure include the Great Ziggurat of Ur and Khorsabad in Mesopotamia. The Mesopotamian ziggurats were not places for public worship or ceremonies. They were believed to be dwelling places for the gods. Through the ziggurat the gods could be close to mankind and each city had its own patron god. Only priests were permitted inside the ziggurat and it was their responsibility to care for the gods and attend to their needs. As a result the priests were very powerful members of Sumerian society. There are 32 known ziggurats near Mesopotamia. Four of them are in Iran, and the rest are mostly in Iraq. The most recent to be discovered was Sialk, in central Iran. The Sialk, in Kashan, Iran, is the oldest known ziggurat, dating to the early 3rd millennium BCE. One of the best preserved ziggurats is Choqa Zanbil in western Iran, which has survived despite the devastating eight year Iran-Iraq war of the 1980's in which many archaeological sites were destroyed. Ziggurat designs ranged from simple bases upon which a temple sat, to marvels of mathematics and construction which spanned several terraced stories and were topped with a temple.

An example of a simple ziggurat is the White Temple of Uruk, in ancient Sumer. The ziggurat itself is the base on which the White Temple is set. Its purpose is to get the temple closer to the heavens, and provide access from the ground to it via steps. An example of an extensive and massive ziggurat is the Marduk ziggurat, or Etemenanki, of ancient Babylon. Unfortunately, not much of even the base is left of this massive structure, yet archaeological findings and historical accounts put this tower at seven multicoloured tiers, topped with a temple of exquisite proportions. The temple is thought to have been painted and maintained an indigo colour, matching the tops of the tiers. It is known that there were three staircases leading to the temple, two of which (side flanked) were thought to have only ascended half the ziggurat's height.

Etemenanki, the name for the structure, is Sumerian and means "The Foundation of Heaven and Earth." Most likely being built by Hammurabi, the ziggurat's core was found to have contained the remains of earlier ziggurats and structures. The final stage consisted of a 15 meter hardened brick

encasement constructed by King Nebuchadnezzar. It has been suggested that the ziggurat was a symbolic representation of the primeval mound upon which the universe was thought to have been created. The ziggurat may have been built as a bridge between heaven and earth. The temples of the Sumerians were believed to be a cosmic axis, a vertical bond between heaven and earth, and the earth and the underworld, and a horizontal bond between the lands. Built on seven levels the ziggurat represented seven heavens and planes of existence, the seven planets and the seven metals associated with them and their corresponding colours.

Joseph Campbell in his book “Masks of God” says that there is archaeological evidence supporting a direct link between Mesopotamian ziggurats and the pyramids of Egypt. Campbell also states that from Egypt, the Mesopotamian culture was passed on almost simultaneously on two separate fronts to Crete and India. From India it reached China and from there it crossed the ocean to the pre-Columbian societies of Central and South America, which could explain the similarities between ziggurats and Mayan pyramids. Campbell further explores the geometry of the ziggurat and its philosophical and spiritual repercussions. According to Campbell, ziggurats first appeared during a sudden scientific and philosophical golden age where such other discoveries were made such as the invention of the wheel, the discovery of the calendar and astronomy, as well as the invention of the written word. For Campbell these are all related.

The Earth needs 365 days to make a single revolution around the Sun, which is also an approximation of the number of degrees in a circle. Ziggurats, like all pyramidal structures, have a square base which could be encompassed within a circular area. The square base theoretically represents the additional five days. The fifth point is the tip of ziggurat, represents the bridge to heaven represented by the circle, a universally considered symbol for infinity and perfection, and the terrestrial world in turn represented by the square. The highest point of a pyramid is a projection of the square’s centre point. This can be interpreted as the earth’s highest point being heaven’s lowest. Campbell says that there were many kinds of philosophies involved in the structure and construction of pyramids. The most plausible explanation is that ziggurats and pyramids were some kind of star observatories and were helpful in calculating the number of days per year and to arrive at a proper calendar.

Marduk killing snake

This seal depicts the killing of snake (Tiamat) by Marduk (enumaelish., 2009) which is similar to killing of vrtra by Indra, and killing of hydra by Zeus. Indra killing vrtra is interpreted as killing of the demon snake and

release of water from heavens. Vritra means any kind of barrier. Some historians interpret that it was Indra who was responsible for destruction of Indus civilisation, and he destroyed the earthen dams across the rivers there by starving out the Indus people. This is the problem with allegorical expression, in allegorical expressions two facts are described, one earthly event to explain another heavenly event which could not be seen. In Indus period it made sense to them because they were able to identify the earthly expression, but because passage of time, we are neither able to identify the heavenly event nor the earthly event. At least if we are able to identify one of the events there will be a breakthrough in interpretations of the Vedas and other mythological stories.



Figure 7: Marduk killing vritra.

Snake represents the old culture and religion, the same theme is repeated in Rig Veda killing of Vritra, and releasing of waters by Indra. Tiamat is the early snake god of Sumerians, and represented the zodiac path of moon, after killing of

Tiamat, i.e. after destruction of old order the new matriarchal order was placed in place of them. This

seal theme is similar to the Indian mythological idea of Indra killing the demon Vritra with the help of Vishnu. Another interpretation is that many of the Sumerian and Indus seals show the astronomical events in allegorical way. It is possible that the shifting heliacal rising from one star constellation to another results in change of mythological story. This story seems to be very important one, and is seen in all major cultures. It looks like that a major change occurred along with introduction of this mythological story. Marduk replaces Inanna in Sumerian mythology in the same way Indra replaced mother goddess as the god of Auriga constellation in Indian mythology.

The figure of Marduk corresponds with Auriga constellation, the snake corresponds to the hydra constellation and the eye of the snake corresponds to the star Spica. (Star-Chitra of Indian nomenclature). In this seal even the eye of the snake is presented as star, (The eye cannot be seen in original picture in website, not in the above given line drawing) this depiction clearly illustrates that it is an astronomical event and not a historical event. Generally snakes do not have horns, (some exceptions are there) but this mythological snake has a horn, which tallies to the star constellation Virgo. There are some other signs within the seals which may be likely be depicting the nearby constellations of Hydra and Auriga. This aspect requires some more additional study, which will bring forth some more additional information. It is likely that the beginning of New Year shifted from star Aldebaran (Bull constellation) to Spica during this period resulting in substantial changes in mythological stories. It is also possible that the new shift occurred after

the invasion of Sumeria by new set of invaders from Anatolia. Because all these stories of Hydra revolve around Anatolia. In the Indian context, it will be coinciding with invasion theory of Indo Europeans.



Figure 8: Marduk priest.

The Sumerian seal illustrated here shows scene of a priest worshipping Marduk. (Cotterell Arthur, 1999). He is worshipping the spear called “Mar” and “H” shaped weapon, if the figure of Marduk killing snake is keenly observed, it can be seen that Marduk is killing the snake with “vajra” weapon in his right hand, while in the left hand; he is holding the other weapon “the four winds”. The four winds are depicted as “H” shaped weapon. The same “Mar” weapon and “H” weapon could be seen in Indus seal also. Together these two symbols might have stood for the phonetic value of “Mar-Duk”. Another important feature about Marduk is that, he has all the characteristics of later day Tamil God “Murugan”. Even the old Sumerian document of Sumeria, “the 40 names of Marduk” contains names with similar phonetic sound to that of “Murugan”. It is likely that Murugan was replaced by Indra in later day Indo European literature and Murugan is the elder of the two gods. Further support for this conclusion can be derived from the fact that “Vel” (Spear) is the prime weapon of Murugan, and he is identified with spear all the time.

CHAPTER-VIII

INDUS VALLEY CIVILISATION

Pre Indus culture

Excavations at Amri and Mehrgarh show previous versions of Indus culture that existed during the Neolithic period. During that time various groups of people were living by hunting and collecting tubers and fruits, and by pastoral nomadism. These people were living in huts and evidence for such huts has been found in some archaeological sites pertaining to the period 4000 BC. During this period, the evidences for this formative stage of Indus Civilization could be seen in various Indus sites. This development seems to have involved the whole of Indus system. But this development did not touch the Gangetic belt or the Southern India. (Bridget, 2008)

Mehrgarh

Mehrgarh is one of the most important Neolithic (7000 BC to 3000 BC) sites in Indus archaeology, and it lies on the "Kachi plain" of Baluchistan, Pakistan. It is one of the earliest sites with evidence of farming (wheat

and barley) and herding (cattle, sheep and goats) in South Asia. It is located near the Bolan Pass, and lies to the west of the Indus River valley. Mehrgarh was discovered in 1974 by an archaeological team directed by French archaeologist Jean-Francois Jarrige, and was excavated continuously between 1974 and 1986. Early Mehrgarh residents lived in mud brick houses, stored their grain in granaries, fashioned tools with local copper ore, and lined their large basket containers with bitumen. They cultivated barley, and emmer wheat, jujubes and dates, and herded sheep, goats and cattle. Residents of the later period (5500 BC to 2600 BC) put much effort into crafts, including flint knapping, tanning, bead production, and metal working. The site was occupied continuously until about 2600 BC. In April 2006, it was announced in the scientific journal *Nature* that the oldest (and first early Neolithic) evidence in human history for the drilling of teeth in vivo (i.e. in a living person) was found in Mehrgarh. (Wikipedia)

Mehrgarh is now seen as a precursor to the Indus. Mehrgarh is located near at the Bolan peak pass, one of the main routes connecting southern Afghanistan, eastern Iran, the Baluchistan hills and the Indus valley. For the first time in the Indian, a continuous sequence of dwelling-sites has been established from 7000 BC to 500 BC. The copper age people of Mehrgarh also had contacts with contemporaneous cultures in northern Afghanistan, north-eastern Iran and southern central Asia. (TURAN BASIN)

The earliest farming in the area was developed by semi-nomadic people using plants such as wheat and barley and animals such as sheep, goats and cattle. The settlement was established with simple mud buildings with four internal subdivisions. Numerous burials have been found, many with elaborate goods such as baskets, stone and bone tools, beads, bangles, pendants and occasionally animal sacrifices. Ornaments of sea shell, limestone, turquoise, lapis lazuli, sandstone and polished copper have been found, along with simple figurines of women and animals. A single ground stone axe was discovered in a burial, and several more were obtained from the surface. These ground stone axes are the earliest to come from a stratified context in the Indian sub-continent. Somewhere between 2500 BC and 2000 BC, the city seems to have been largely abandoned, which is when the Indus was in its middle stages of development. It has been surmised that the inhabitants of Mehrgarh migrated to the fertile Indus valley as the Baluchistan became more arid due to climatic changes.

Mohenjo Daro

Mohenjo Daro (Mound of the Dead) was one of the largest city-settlements of the Indus Valley Civilization of Indian sub-continent situated in the

province of Sind, Pakistan. The period of this civilization coincided with the civilisation of ancient Egypt, Mesopotamia, and Crete. The general assumption about this culture so far is that it is the earliest urban civilisation. But this view is incorrect and a new view is being presented in this book is that it is a kind of necropolis. The very first word about this place in any history book starts with an explanation about the meaning of the Sindhi Language word “Mohenjo Daro” as the “mound of dead”, but in the subsequent narrations, historians resort to various explanations about this place, contradicting the name of the place.

As mentioned in the name itself literally it is the city of the dead, i.e. it is a necropolis^j and not a metropolis as imagined by archaeologist and historians of India. Because of the wrong association of this place as the ruins of an ancient city many of the seals found here remains unexplained, the script also remains undeciphered. If the archaeologist properly reassess the findings with the new view that it was a burial place, and then all the differing theories and opinions will fall into place and doubts will be cleared. A clear picture will emerge instead of the hazy picture being presented now. In this book, no new evidences are being brought in, but only the already existing evidences are being taken up for re-evaluation and reinterpretation of the already found artefacts of Indus valley civilization.

Rediscovery and excavation

Mohenjo Daro was built around 2500 BC and abandoned around 2000 BC. It was rediscovered in 1922 by Rakhaldas Bandyopadhyay, an officer of the Archaeological Survey of India. He was led to the mound by a Buddhist monk, who believed it to be a stupa. In the 1930s, massive excavations were conducted under the leadership of John Marshall, K. N. Dikshit, Ernest Mackay, and others. Further excavations were carried out in 1945 by Ahmad Hasan Dani and Mortimer Wheeler. The last major excavation of Mohenjo-daro was conducted in 1964-65 by Dr. G. F. Dales. After this date, excavations were banned due to damage done to the exposed structures by weathering. Since 1965, the only projects allowed at the site have been salvage excavation, surface surveys and conservation projects.

^j Necropolis means a city of the dead; a name given by the ancients to their cemeteries, and sometimes applied to modern burial places; a graveyard.



Map 9: Extent of Indus valley civilisation

Locations of various sites in Indus Valley

Mohenjo Daro is located in the Sindh province on a ridge in the middle of the flood plain of the Indus River. The ridge is now buried by the flooding of the plains, but was prominent during the time of the Indus Valley Civilization. The site is situated in a central position between the Indus river valley on the west and the Ghaggar-Hakra on the east. In

the modern day, the Indus flows to the east of the site, but the Ghaggar-Hakra riverbed is dry. Construction over the years precipitated the need for expansion. To accommodate this, the ridge was expanded via giant mud brick platforms. Ultimately, the settlement grew to such proportions that some buildings reached 12 meters above the modern plain level, and probably much higher above the ancient plain.

Harappa

Harappa is a city in Punjab, northeast Pakistan, about 35km southwest of Sahiwal. The modern town is located near the former course of the Ravi River and also beside the ruins of an ancient fortified city, which was part of the Cemetery “H” culture and the Indus. This ancient settlement existed from about 3300 BC and is believed to have had as many as 25,000 residents, considered large for its time. Although the Harappa Culture extended well beyond the bounds of present day Pakistan, its centres were in Sindh and the Punjab.

Significance

The standard view about Mohenjo-daro is that, in ancient times it was most likely one of the administrative centres of the ancient

Indus Valley Civilization. It was the most developed and advanced city in South Asia, and perhaps the world, during its peak. The planning and engineering showed the importance of the city to the people of the Indus valley. Now the time has come that this view had to be properly reconsidered. No such big cities existed at that time period in any part of the world. Indians live in such clumsy, squalid towns even today, which shows that such a metro would have resulted in outbreak of diseases and death in large numbers. Because of the reason of unhygienic conditions, many of the villages did not grow beyond the population of few thousands. At the maximum a town could have with stood a population of 10,000 not more than that. But the archaeologist estimate that nearly 50,000 to 1, 00,000 people would have lived in the city of Mohenjo daro and Harappa would have sustained equal number. Such huge density was possible because there were only dead bodies kept in those houses not living persons. It was a necropolis not a metropolis.

Drainage system

Much is being said about the drainage system of the two cities. No doubt that experts dealing with those places, believed that sustaining such huge population was possible because it had such a good drainage system. A closer look at the photographs presented by J.M. Kenoyer in his website Harappa.com shows that the drainage is 6 feet tall and it is a cobbled passage way. Indian cities do not have a drainage pipe more than 2 feet even today at modern times. How could it be possible for Indus people to build drainage system consisting of 6 feet high passage ways? No doubt it was a passage way, but not for cleaning the blocked drains but the passage way to enter the tombs, and the inner burial chamber or the burial room. The passage ways were closed after the placing mummified bodies. The closed passage ways are visible in the photos of Kenoyer. These closed passage ways gives the false impression that later day occupants have blocked the drainage and built new houses.

We are not able to correlate this passage way to the entry passage of a tomb because the roof of the tomb / burial chamber has fallen down. The dead bodies were placed in nominal construction like a room which has not survived the time. Naturally the roofs have fallen down, and the passage may exist but there is no burial room. In that condition we are not able to visualize that it could have been a tomb. When the facts are not connected together, and interpreting only the passage way has resulted in wrong conclusions. What is needed is that a dramatic 3D visualisation of the past, how such a room could have existed, and what could have been the use of that room. At this juncture, we should

remember the life and work of Henrich Schliemann who located the remains of real Troy. (City of Helen, Paris and Trojan horse)) Even though he was not a trained archaeologist, yet the greatest discovery of archaeology was made by him. He was such a romantic person who believed in every word of Homer and finally found Troy. He had an objective that one day he should locate Troy and prove the world that Homer was right and was describing about a city which really existed. His visualization should have been phenomenal, because of that reason only such goal and objective had been realised. We should also use such visualization to interpret the archaeological evidences.

The plat forms

The usage for the plat form is still not clear. If the above said view that the rooms were actually burial chambers, then the use of plat form will also fall into place. The plat forms were built to keep the funeral pithoi over them; such a huge pot containing mummified body would have required a stable plat form. At present these platforms are being described as plat forms for grinding grains. The picture of platform in the Harappa.com web site shows that three or four such plat forms exist in a single room. If so many platforms were used for grinding grains, then Mohenjo daro should have been an industrial centre consisting of many grain-milling factories beating all other civilisations of that time. The new interpretation on the platform is that the platforms were used for keeping funeral pithoi.

Granary

The public buildings of these cities also suggest a high degree of social organization. The so-called great granary at Mohenjo-daro as interpreted by Sir Mortimer Wheeler in 1950 is designed with bays to receive carts delivering crops from the countryside, and there are ducts for air to circulate beneath the stored grain to dry it. However, Jonathan Mark Kenoyer has noted that no record of grain exists at the "granary." Thus Kenoyer suggests that a more appropriate title would be "Great Hall."

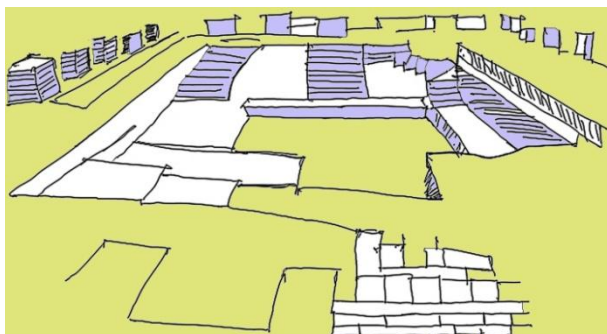


Figure 9: Great bath.

Close to the granary, there is a building similarly civic in nature - a great public bath, with

steps down to a brick-lined pool in a colonnaded courtyard. The elaborate bath area was very well built, with a layer of natural tar to keep it from leaking, and in the centre was the pool. Measuring 12m x 7m, with a depth of 2.4m, it may have been used for religious or spiritual ceremonies. Within the city, individual homes or groups of homes obtained water from wells. Some of the houses included rooms that appear to have been set aside for bathing; waste water was directed to covered drains, which lined the major streets. Houses opened only to inner courtyards and smaller lanes. A variety of buildings were up to two stories high. Being an agricultural city, it also featured a large well, and central marketplace. It also had a building with an underground furnace (hypocaust), possibly for heated bathing.

Mohenjo-daro was not a fortified city. Lacking actual city walls, it did have towers to the west of the main settlement, and defensive fortifications to the south. Considering these fortifications and the structure of other major Indus cities like Harappa, lead to the question of whether Mohenjo-daro was an administrative centre. Both Harappa and Mohenjo-daro share relatively the same architectural layout, and were generally not heavily fortified like other Indus Valley sites. It is obvious from the identical city layouts of all Indus sites, that there was some kind of political or administrative centrality, however the extent and functioning of an administrative centre remains unclear. Mohenjo-daro was successively destroyed and rebuilt at least seven times. Each time, the new cities were built directly on top of the old ones. Flooding by the Indus is thought to have been the cause of destruction. The city was divided into two parts, the so-called Citadel and the Lower City. Most of the Lower City is yet to be uncovered, but the Citadel is known to have the public bath, a large residential structure and two large assembly halls.

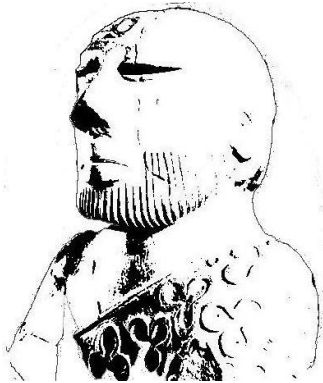
Artefacts

The "Dancing girl" found in Mohenjo-daro is an artefact that is some 4500 years old. The 11cm long bronze statue of the dancing girl was found in 1926 from a house in Mohenjo-daro. She was British archaeologist Mortimer Wheeler's favourite statuette. She has an African^k face with pouting lips and insolent looks in her eyes. She's about fifteen years old, and she stands with bangles all the way up her arm and nothing else on. Mortimer Wheeler describes her as a perfect girl of the moment, perfectly confident of herself and the world.

^k African: The word African is being used in this book in place of Negroid, because of racist connotation of the word Negroid.

Wheeler romanticises the girl as perfect example of the moment, but it looks like that these kinds of girls are associated with some religious ceremony associated with death. The “goat seal” shows that some human sacrifice had been done and seven such girls are standing in the front as if they had performed a ritual dance. Many burial pot shreds found in Tamil Nadu shows such a figure of women keeping her left hand in the hips. It shows that she is somehow associated with burial ceremony and associated rituals.

There is another artefact which has become a symbol for the Indus , Seated male sculpture(18cm tall), the so-called "Priest King" (even though there is no evidence that either priests or kings ruled the city). Archaeologists discovered



the sculpture in Lower town at Mohenjo-daro in 1927. It was found in an unusual house with ornamental brickwork and a wall niche and was lying between brick foundation walls which once held up a floor. The statue of the so-called "Priest King" wears a shawl covering his left shoulder. This statue is dated around 2500 BC and is at present displayed in the National Museum of Pakistan, Karachi. This bearded sculpture wears a fillet around the head, an armband, and a cloak decorated with trefoil

patterns that were originally filled with red pigment. The two ends of the fillet fall along the back and though the hair is carefully combed towards the back of the head, no bun is present. The flat back of the head may have held a separately carved bun as is traditional on the other seated figures, or it could have held a more elaborate horn and plumed headdress. Two holes beneath the highly stylized ears suggest that a necklace or other head ornament was attached to the sculpture. Eyes are deeply incised and may have held inlay. The upper lip is shaved and a short combed beard frames the face. The large crack in the face is the result of weathering or it may be due to original firing of this object.



Figure 10: Goat seal.

Human sacrifice

The Indus goat seal shows the priest in a typical Indus sacrifice scene. Some historians interpret that the object on the stool in front of the priest is a human head,

seal no.M-1186 (Parpola, 2000)(page: 260, Fig: 14.35)). This evidence of human sacrifice has come from the seal shown in the website of Jonathan Mark Kenoyer. (Kenoyer J. M., Harappa.com). Even though the seal shows human sacrifice, the main purpose behind the seal is an astronomical event, which is of religious significance. The details are given in an elaborate manner under the chapter “Interpretation of Indus symbols”.

Criticism

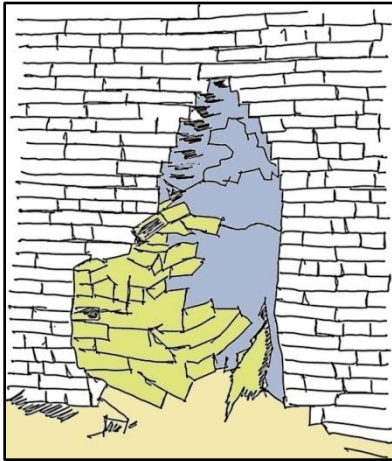
The name Mohenjo Daro itself means the mound of the dead, it is self explanatory, but archaeologists are going to various lengths to prove otherwise. It was a necropolis not a metropolis as imagined by various archaeologists. Necropolis means city of burial, not city meant for living persons. This new interpretation that it was a necropolis would substantially alter various other interpretations in current usage. For example the standard view is that nearly 50,000 people were living in Mohenjo Daro and the prime of its existence. This is not an acceptable view, because 50,000 dead bodies can be kept in such a congested condition, but not 50,000 living people. Such a large number of people to live in an insanitary condition will result in outbreak of epidemics and massive number of deaths.

The structure identified as granary is doubtful as per American history professor Kenoyer; he states that it is simply a big hall. Careful observation of the pictures available at the web site (Harappa.com) shows that it looks more like a brick kiln than a big hall. Note that large numbers of bricks were used in construction of these burial tombs. For such a large scale consumption of bricks, bricks should have been manufactured on industrial scale. Mohenjo Daro and Harappa were important places of those times, and it is likely that the mortuary business was carried out in industrial scale at that time. Note that the bricks extracted from these two places were used as ballast for the considerable length of the railway line during British period. The industry which survived here was funeral industry and business was mummification. Further, Kenoyer says that some ventilation pipe like structure exists which lead to the conclusion that it was a granary. The ventilation structure is essential in a brick kiln for proper burning of bricks, the granary depiction in various reconstructed pictures looks more like a brick kiln rather than a granary.

Storing grains in such large scale is a difficult job, the grains should be properly dried or it will rot within days of storage. Large scale insect attack will occur in granaries and control of rats will be next to impossible task in such large scale storage of grains, considering all these factors it can be safely concluded that the structure was definitely not a granary. In addition to that there is

another doubtful factor that whether Indus people had any such huge surplus production of grains to store in such big granaries.

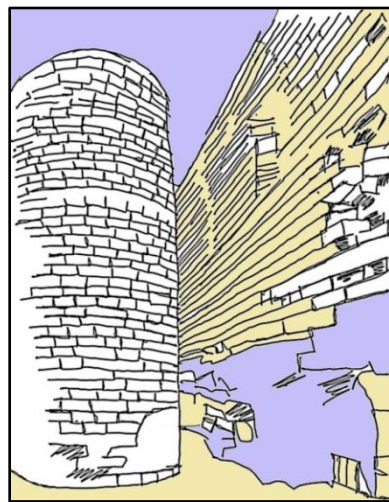
This interpretation may raise a doubt that no evidence for mummification is seen so far in the Indus valley artefacts. There is no evidence of mummies because the mummies crumble on exposure to light, and the grave robbers had played a significant role in robbing these mortuary temples. Eric Wunderlich gives a detailed account on this issue, why no such mummies have been found in the palace structure at Crete. Arthur Evans had also wrongly concluded the Minoan funeral parlour as a “palace” because of the same reason that no mummies were found at the time of excavations. In this regard the explanations given by Eric Wunderlich are informative and enlightening and are applicable to the situation in Indus sites also.



rural India even today. archaeologists.

shows that the parapet ground level and goes up nearby building. (See the compare the level of well Harappa.com)). The well is not instead of that it is Most probably it is a Shaft burial), but it looks was the passage for the Some wells are oval shaped (web site of an oval shaped parapet wall of a well construction in any of the existing wells in India.

The photo of blocked drain in the web site (Harappa.com) shows that it is simply an entrance to the tomb. It is highly impossible that such huge drains of man's height would have been built during those times. Even as on today, Indian cities are having one or two feet diameter drainage pipes, in such a situation building six feet high drainage channels are absolutely ill-logical and without any requirement for such a facility. Most probably Harappans were using open toilets as is practice in Not sophisticated toilet as imagined by some



Photograph of the well wall is starting from to two storey level of the figure given here and and nearby wall (Kenoyer J. M., going down into earth, growing up towards sky. circular burial tomb (or like a well. Or simply it tombs in the lower level. shaped some are heart Kenoyer). I am yet to see

The potteries are also tailor made for funeral purpose, some of them show a protruding tube, meant for funnelling the sacrificial blood into ground. The “toilets” described by archaeologists seem to be “ordinary holes” meant for pouring blood into underground to nourish the dead in the underground burial chambers. Majority of Indus seals illustrate bull as the logo theme. It is probable that the animals depicted in the seals were sacrificed and as a proof the tokens were made. The tokens would have been attached to the mummies, so that the dead person’s soul can produce that evidence before the God of underworld (God of the dead); ensuring that deceased person’s soul received a good treatment in the other world. The current explanation that the seals were used as some kind token of identity of ownership of goods exchanged in trade does not seem to be accurate. Indus seals generally depict the date and month in which a person died. Some other seals show the date and month in which an important sacrifice or ritual was carried out. (Further details are under the chapter Astronomy and Calendar)

Many theories about decline of IVC are also wrong, because it never declined at all. Many of the cultural ideas depicted in Indus seals are still being practiced as on today. It looks like that as if Indus culture had declined, because of the deserted nature of excavation sites. The sites were looking deserted because they were burial places not living places, and those sites were meant as a shelter for ghosts of dead persons. A living place is a valuable real estate and it will never be deserted, generation after generation it will be rebuilt, this place was not rebuilt because it was a haunting place of ghosts and no one wants to live in such a place. The culture of building elaborate house of dead vanished with the arrival of Indo-Europeans, who were tomb raiders not tomb makers.

At this juncture, a relevant question will definitely be raised, why no human bones are lying around, if these places were cemeteries? No bones are being found because the tombs were raided by later day invaders, when mummies and bones were exposed to light and heat they get pulverized within days. But still there are lots of evidences of skeletons for a living city. (Figure 9.1. page 160 of the book “The Indus civilisation”, (L.Possehl, 2003). This location map shows that skeletons are strewn around all over the place, not restricted to any small location as normally expected. This shows that entire place was used as a burial ground and not merely a small enclosure within the site.

The Great bath is the only structure which had been properly identified so far. It is place for carrying out religious rituals. But only clarification required is that probably this great bath was used for funeral ceremony and not for other ceremonies. As per prevailing Hindu custom any funeral ceremony is conducted around a water body like sea shore, river or a pond. During the course the ceremony the person making sacrifices to the dead person is required to take

bath frequently. He has to wash himself clean at the beginning of the ceremony, middle of the ceremony and finally at the end of the ceremony. Finally the offering is made to crow, and remaining offerings are thrown into water; final ashes of cremated body is washed into a water body. This great bath might have served such a purpose.

It is likely that mummification would have been carried in this place. Mummifications would have brought lot of revenue to those professional physicians. Further as long as the mummy existed, it would have required regular poojas and animal sacrifices supposedly to sustain the mummies. All these activities would have sustained the mortuary temples of this place. Even though there is no evidence of mummification in Hindu culture as on today, but the remnants of that practice can be seen in present day rituals for the dead. After cremation of the body, the final ceremony is held only on 40th day, till then mourning period continues. How this period of 40 days of mourning is arrived at? It is simply because of the fact that it requires 40 days for a proper mummification of a body. Verifying the data available with Egyptian mummification techniques will show that it took exactly 40 days to properly preserve the body.

Beating the breast to show their grief is a common practice in the cultures of Dravidians, Egyptians, and Minoans. It is likely that the same was followed in Indus valley also. Circular platforms; originally explained as grinding plat forms are really meant as platforms for keeping the funeral jars (Pithoi) for safe keeping and everlasting journey into eternity.

Decline of Indus civilisation

So many theories have been propounded to explain the decline of Indus culture, but none of the explanation is satisfactory, because it never declined actually. Imagine the situation that Indus people were using those places as necropolis and later came grave robbers with scant respect for those buried in those places. Because their main attraction was to extract, some valuables like gold, or some metal out of the utensils or weapons buried along with the deceased persons.

Later entirely new culture came, they were the people who burnt the body, to outsmart the grave robbers, this cremation practice became more prominent and old practice of burial declined, resulting in burning of all funeral materials. It is not only that to avoid grave robbery, our ancestors have resorted to burning of dead bodies, there is also another important reason. The practice of “Black magic” requires the body parts of some deceased persons. The magician will make a “magic portion” out of body parts and the soul of the dead person will

be controlled by the Magician. That is a recurring theme in all the magic stories of India. Practically also, black magic is being practiced even today. To avoid such a fate of soul ending in the hands of magicians, our ancestors preferred to burn the dead body. This is a strong reason for the shift in funeral practice in Indus Culture. This has resulted in a scene where it gives an impression that these places were occupied by culture less people. Cultured people were very much there and Indus culture never declined in a proper sense, which explains the re- emergence of all cultural ideas of Indus people in the later period.

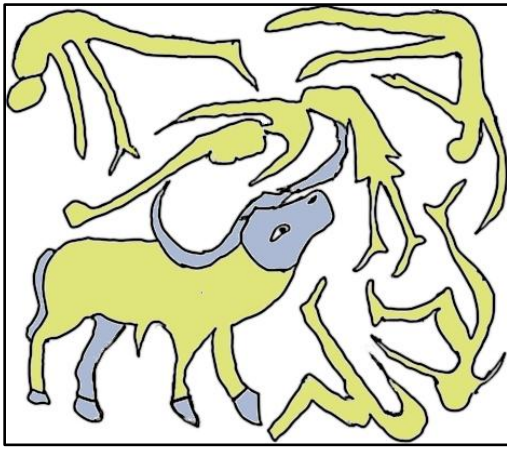
Similar situation existed in the Greek culture also after the fall of Minoan palace culture, there is a dark period in which no evidence of culture is seen. Later, it re-emerges after a period of 500 years. Wunderlich correctly observes that, it is wrong to conclude that no cultured people existed during that period. Only mistake of those people was that they were practicing burning of corpses instead of burial. The situation narrated by Wunderlich on Greek culture is very similar to the scenario presented in Indus valley. There is no proof that Aryans came in large scale and destroyed Indus culture. If Indo Europeans entered into India, it was only in trickle drops and not in large scale migration (around 1500BC) as pictured by some historians. There is evidence of high percentage of M-17 marker genes all over north India, (Spencer Wells) but source of this M-17 marker need not be from the supposed to be Aryans entering India around 1500BC. The source of this marker could be from the large scale incursions which occurred in the later periods. This gene might have got introduced during the periods of invasions of Greeks, Huns (Kushans), Sakas, Parthians and Islamic kings (Medieval period).

All the theories propound by Spencer Wells in his classic book “The journey of man- A genetic odyssey” have been accepted in this book, except the above mentioned point. Spencer Wells concludes that Invasion of India by Indo Europeans happened around 1500BC and has been confirmed by the presence of M-17 marker in high percentages in North India. This theory of spencer wells has been negated by discussion in the earlier paragraph that the source of M-17 gene may be from later day invaders and not necessarily from invaders of 1500BC. Only detailed genetic study of Indian population along with additional genetic markers will clarify this issue. There is a possibility that such a study can be carried out and proper conclusions are arrived at.

Re-emergence of IVC ideas

Many of the ideas of IVC have re-emerged later and are surviving as on today. The idea that invading Indo-Europeans have totally

destroyed earlier culture seems to be incorrect. Some of the cultural ideas which are still surviving today are like Shiva and mother goddess worship along with worship of bull, which are the main theme in many Indus seals. The same practices are still alive and kicking as on today. As said in earlier paragraph the IVC never declined at all, hence the concept of re-emergence of IVC ideas is misnomer. However some important cultural ideas which are still widely being followed are reproduced here for the sake of clarifying this concept.



Bull fighting

The above depiction has been taken out of a seal from Indus site and it shows that bull fighting had been an integral part of Indus Valley culture. The remnants of this culture survive only in the southern most part of India. Bull fighting is still being practiced and it is an important cultural event in Southern Indian state of Tamil Nadu. The scene of bull fighting depicted in this seal resembles very much like

the bull leaping scene painted in the walls of Knossos of Cretan civilisation. Worship of bull is an integral part of present day Hindu culture, which also happened to have been practiced by Indus people.



Asherah pole

This Indus seal depicts a pole of Ficus religiosa (Pipal Tree), on which some cloth is tied around. The cloth rounding up is something like women tying a sari. This pole is identified with the goddess Inanna and there by the Auriga constellation. The square with the wheel in the right side lower corner is the symbol of sun calendar (as per Bengt Hemtun). Over all this seal depicts the beginning of the year as well as planting season.

An Asherah pole is a sacred tree or pole that stood near Canaanite religious locations to honour the Ugaritic mother-goddess Asherah. (wikipedia) This worship

looks like the worship of Inanna (Mother goddess- Kali) by a priest in the goat seal. The constellation Auriga seems to be an important one and is shown as the tree of heaven. Most likely the religious idea is that Inanna lives within that tree. Most probably this constellation was visible at the time of heliacal rising of rainy season at some point of time; it may not be relevant now. That tree is symbolically planted during the marriage ceremony of the agricultural communities even now in India. This shows the importance given to this constellation because it signalled the arrival of monsoon season and starting of agricultural season which is very important in the life of any agricultural community.

CHAPTER-IX

INTERPRETATIONS OF MIDDLE EASTERN SEALS

There are many similarities between ancient Middle Eastern cultures and south Indian culture. Bengt Hemtun who has been studying the ancient religious symbols of Baltic nations and their connection with ancient cultures of Middle East and Egypt noticed similar parallels. Bengt Hemtun was born in Finland a few years before the World War II. He was sent to Sweden during that period in order to escape the Nazi regime. He became an orphan and was brought up by the local guardians. He studied agriculture and forestry for three years and after that he studied economics. He developed some health problem, when he was 41 and was forced to retire. After that he had put in more than 20 years fulltime study of history and culture as a hobby. His area of interest is making synthesis of "ancient ideas" with special studies in symbolism and ancient scripts.

His ideas on ancient symbols are highly informative. Basically he is interested in searching for the roots of civilisation of Sweden. Those processes have lead him into the conclusion that civilization of Middle East and Egypt were the sources of all civilisations of Asia and ancient Europe.(Or) Other way it can be said that the Middle Eastern civilisation was mother of all known civilisations. It is important to note that he classifies Indus civilisation as one among the three important ancient civilisations of the old world. His observations on the symbols of Middle East are very accurate and informative. Hemtun states that the symbols used in Sumeria, Egypt and Indus are interrelated and explain each other. Some of his ideas are reproduced here, because these ideas explain the Indus seals much better than any other explanation seen so far.

Universal language and symbols

The term "lingua franca" originally meant a mixed language of Italian with French, Greek, Arabic and Spanish words used in Levant. Lingua franca is a language, which serves as a medium between different nations whose languages are different and unintelligible to each other. This idea of lingua franca is much older than what we know (Latin is the first known lingua franca) and also that Sumerian cuneiform was used as lingua franca script until last millennium BC.

We can see the Astro-symbolism as "lingua franca symbolism" of the establishment and not only in the three big cultures but also as far as in Scandinavia from the very beginning of Ritual Age in 4200 BC. The symbolisms on these seals generally reflect on the religious ideas of priest-kings and commercial utility ideas of nobles and traders of the ancient time. Some seals are furnished with cuneiform script that tells us about the owner of the seal. Bengt Hemtun states that the scripts on these seals often used god-names or part of a god name. He further states that scripts of ancient time were not written along with verbs as in modern scripts. Only syllables were written without any verb, and the reader of that time could understand the meaning of that sentence. The problem for the present day linguist is that he is not able to understand their script and language without proper verbs and sentences. This kind of syllable script was the model of that time and was commonly used by all languages of that time. (Hemtun, Sumerian heritage, 2009)

The ancient cultures knew everything about algebra in symbolism. They made icons that were common in large parts of the world. One clever symbol could be icon for a process, a treaty or whatever they needed to picture. We need imagination if we want to understand. Another thing is that maybe these terms are much older than the time period to which they are assigned to now. New finds show that many cultures developed in parallel to the three big cultures from 5000BC onwards. In middle of second millennium BC (i.e.2500BC) the usage of Anatolian Neolithic language was not new, it was already in existence from 5000BC onwards (as per Hemtun's observation). Recent genetic study shows that the Neolithic farmers were spreading their technology (Agricultural technology) and language from 10,000BC onwards. Too often, the historians and archaeologists talk only about the heydays and not about the roots of development. The pinnacle of Mitanni people achievement is visible in 2500 BC, whereas the root of their culture and language lies in 7500 years of combined developments of agriculture and cattle-rearing besides the growth of small cities and trade.

Maybe there was a "Universal language and Sumerian cuneiform was used like Latin in Middle East until last millennium BC. So they used these gods as "international" terms. Too often we underestimate the logic and manners of ancient times. The Sumerian texts show how they defined things precisely in their texts. Outside the three great cultures we find another more reliable source. It is the seals of kings and traders from the Hittite, Hurrian and Mitanni kingdoms as good examples. Their kingdoms extended from Anatolia and Ugarit at the Mediterranean coasts to the Zagros Mountains and included at the time Assyria and Babylon. The seals show similar culture from Ugarit in Levant to Nuzi in Iran (and of course the rest of Mesopotamia and to some extent even in

India). We know that these cultures were much alike the former Sumerians with a lot in common with Indian culture. These kingdoms and their rule varied in time of course.

On the issue of Aryan invasion of India, Hemtun states that there is no proper evidence for arising of Aryan civilisation as suggested by Marija Gimbutas. His argument is that small band of some nomadic Aryans could not have destroyed such a big culture like IVC, which was spread over 2600 settlements consisting of 3,00,000 inhabitants. The facts available so far do not show any evidence that IE were in such large number at their time of entry into India to destroy all the centres of Indus culture. The next significant argument of invasion theory supporters is that few Indian god names appear in the Mitanni treaty from middle of second millennium BC. The Aryan theory supporters believe that the Indo-Aryans god names Mitra, Varuna, Nasatyas in the Mitanni and Hurrian pantheon are evidence of invading people. Hemtun's hypothesis is that it is more likely that the words could have come to use by cultural influence and could not be taken as evidence for Aryan invasion theory.

Naked goddess

Some interpreters think that the Sumerian seals are decorated with demons from underworld, but Hemtun identifies that most of the portrayals are icons from zodiac and are telling about their world order. Later Zodiacs were modified to keep the hero figure in the centre fighting the animal, two lions or two bulls, which is a common motif in Middle Eastern seals. Many of the Middle Eastern seals show worship of the naked goddess. Hemtun concludes that this naked goddess (Inanna) is representing asterism Auriga, because in one seal, she stands on the 'oxen' in 'Indian style'. Note the similarity between this Sumerian seal and the Indus seal depicting "deity of tree" in the "goat seal". This seal illustrated here is from Syria (circa 1800 BC) and the naked goddess was the symbol of rain and fertility in Levant.

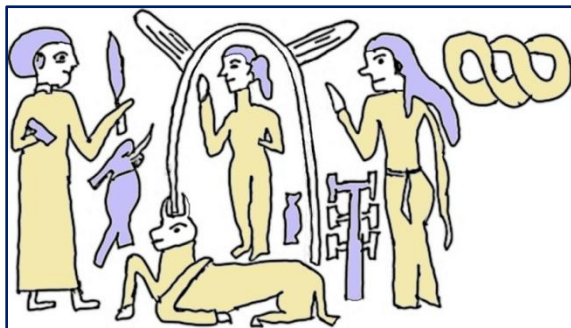


Figure 11: Naked Goddess.

(Adapted from seal presentation in Hemtun web site- Catshaman)

The endless screw in upper corner stands for the River in sky, but it also

stands for treaty, tolerance and perhaps the seasons. Compared with some other seals it could also mean the time running in quarters, because in some seal the "time-wave" is depicted as four circles with a dot inside. The endless screw (time-wave) is very abstract and much like present day infinity symbol (∞). In fact, both the symbols look so similar, it looks like that the present day infinity symbol had developed from the old Sumerian time-wave symbol. Normally, wavy lines are named as serpentine (snake) design. But that is not correct explanation for the portrayal on this seal, because no serpent head is seen on the wavy lines. Waved lines are more likely to express flow and often the time flow. In some Sumerian seals there is a symbol like a fork with wavy legs. That symbol consists of the Serpent and the "harvest" in end of season. Inanna sometimes hold the snake in her hand and the Phoenicians made this symbol equalent to the asterism Crab. The time-wave is indefinite and expresses the indefinite time at the wavy rock. That leads to an idiomatic expression picturing life as a journey on the River of Time.

Hemtun observes that the style of seals vary with different kings. The languages also vary and sometimes mixed languages are used. Best example for use of mixed languages is the seals from the time of Sargon and that of the Hittites period. However, the point here is that even though there were minor differences in the presentations in the seal, the overall idea was the same in all the seals, heavenly ideas were depicted on the seals to reflect on the earthly events or ideas, and was fully understood by the people of the ancient time. Hemtun says that the iconography was used as a Lingua Franca of Middle East in the ancient times. There are many differences in the myths explaining a single phenomenon. These differences in myths are because much time had passed (3000 years) and many independent cultures had evolved in the Middle East.

Much of these cultural ideas in the form of myths mixed with the earlier heritage from the leading Sumerian order (3000BC). This cultural lingua franca was prominently in use in Mesopotamia, Levant, Anatolia and the Aegean world. The world order of that time was a kind of federal society. It begins with independent city-states in Sumer probably. As long as there were space and fertility enough the ritual order kept the societies peaceful except for the "mountain people" in the Sumerian legends. The mountain people attacked settled cities of Mesopotamia and were the main threat to the civilised life of plain people. Sargon of Akkad was the first to unite many cities and reached the Levant around 2300 BC. It is not clear, how much cultural imperialism of Sargon influenced the people of conquered lands, but trade and intermingling of people from different cultures over a period of time had much greater influence on spreading of cultures.

The Hittite kingdom consisted of small city-states lead by the high priest-king. The duty of priest-king was primarily to lead the seasonal rituals

in the same ways as the pharaohs of Egypt were leaders of rituals. Pharaohs of Egypt acted like a “Calendar man”, all the rituals and ceremonies carried out by Pharaohs corresponded with various agricultural seasons. Common people were reminded of the ploughing season and planting season through different festivals at different seasons. The farmers who followed the rituals of pharaohs could carry out agricultural operations successfully within the scheduled time and reaped benefits (better harvest). The role of Hittite priestly king was something similar to the Egyptian Pharaohs. This role of kings as “calendar man” reflects on the spread of cultural ideas and uniformity of ideas throughout Middle East and Levant.

Hittites conquered Babylon around 1600 BC and soon influence of Sumerian symbolism could be seen on the symbolism of Hittite. The Hittite world order seems to have influenced Europe very much as we see in the symbolism during Bronze and Roman Age. We should not forget that Sumerian language and cuneiform script became what Latin has been for Europe. General estimate of historians is that the Sumerian dictionary contained around 65000 words. Scribes and writers of nearby areas freely borrowed and used the words from old Sumerian documents and word lists. This resulted in spread of Sumerian language and adaption of the same as lingua franca of Middle East, Anatolia and Levant.

Indus astronomy and calendar symbols

Every culture needs some kind of calendar for time planning. That also means they need symbols and conventions that at least some people understand and can use the same symbolism and conventions. Hemtun observes that all three big cultures of ancient time had many things in common. The best example is that of calendar symbols. The calendar symbols of three big cultures are given below for comparison. The first two symbols are from Sumer and Egypt respectively and the third symbol is a seal is from Indus valley.

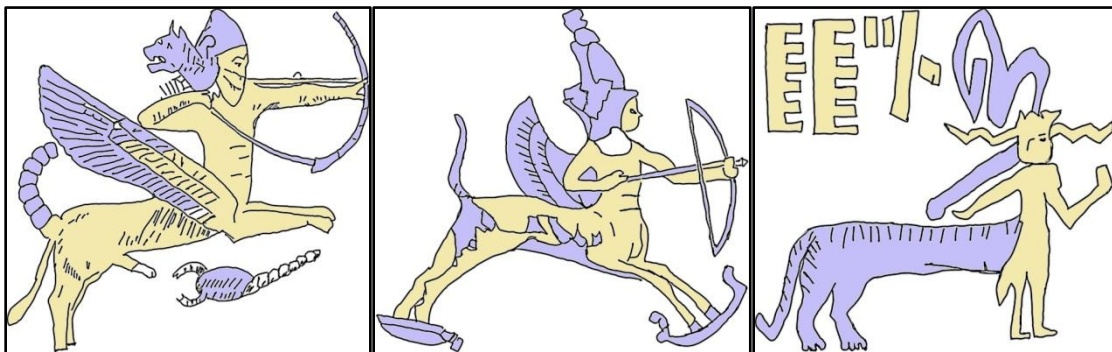

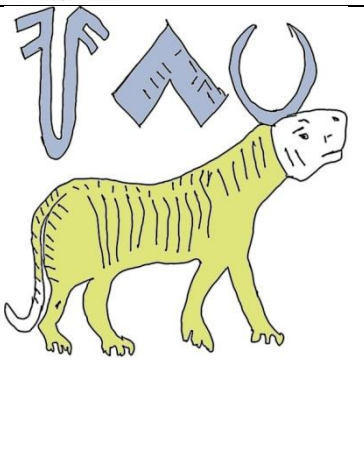


Figure 12: Centaurs of Three big cultures

(Adapted after Benght Hemtun, Website-Catshaman)

In Sumer and Egypt, these symbols designate five seasons of a year. The Gemini constellation identify the first season (spring season), which is shown as front toes of the horse. Constellations Cancer, Lynx and Ursa Major put together makes the archer, and this archer indicates the second season of Sumerians. The other seasons are marked by other constellations like Scorpio and rear portion of the horse. The constellation Scorpio is explicitly shown in the first seal and still is the popularly used zodiac symbol. In Indus symbolism there is a change because the spring starts with Bull constellation (Auriga constellation) for Indus people. This Auriga constellation is shown as human portion of the female centaur like creature. The hind portion of this centaur is shown like a tiger not a horse. Hemtun is of the opinion that even though there are variations in image, the basic theme is that it is a composite picture indicating various seasons. All the three old civilisations had used the same idea, which shows the cultural link that existed among these cultures.

Analysis of symbols as per Benght Hemtun

	<p>The female centaur symbolism is possibly out of inspiration from Sumerian ideas. Observe the animal body of a tiger and the Markhor goat horns. It was originally a merged asterism for the five moon season from Leo to Scorpio. With passage of time this concept has been simplified. In this case of Indus symbol, it covers only four-month period, symbols for Markhor-goat (Aries constellation) to Virgo constellation.</p>
	<p>There were no tigers with horns at any time in the existence of this world and Indus people definitely knew about that. It is more likely that this symbol was indicating a "two month" symbol. In one seal we see the horned hero in battle with a tiger. Maybe we could associate to the Bullfight as in Sumer between Gilgamesh and the Bull (or) between the Bull and brothers Enkidu and Gilgamesh. That Bull was perhaps the asterism Taurus below the hero Perseus. The two symbols should be read as "period in the angle" that was a corner of the month-wheel / sun square.</p>


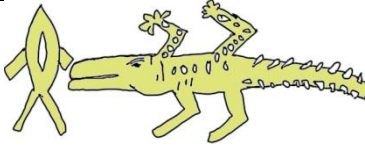
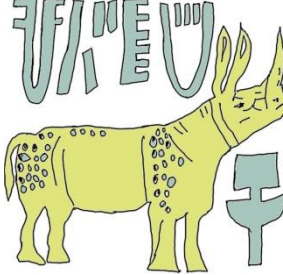
	<p>Hemtun states that there are several ideas, which have been directly taken from Egypt and used in Indus valley civilisation. The Bull at the tray is similar composition as on the Narmer palette (Egypt, ca 3000 BC). It was symbol of Pharaoh as the "Big Bull", defender of the two lands. The bull was symbol for Horus also.</p>
	<p>We see the "meen" (fish) symbol in front of Gharial the crocodile that surely was an asterism near Sagittarius. According to the symbolism a Crocodile eat the months of the year and it was replaced with a little one.</p>
	<p>Here we see the Rhinoceros together with ritual ship symbol that we normally see with Unicorn. Hemtun suggests that these two symbols were opposite and would mean May and October. That could have been the "sailing season".</p> <p>But Mahadevan says that the symbol before the unicorn looks like the 'soma filter' and it looks like symbol of ritual vessel is more apt than the explanation of "boat symbol."</p>

Table 6: Analysis of symbols as per Hemtun

Humanised symbols

In dynastic period (2900BC-2300BC) the scribes of Sumeria started humanising the zodiac symbols as well as symbols of Gods. The high priests of Sumeria wanted a direct link to the gods, because that would give them more power. In Egypt, this phenomenon of humanising could be seen in the story of Horus. God Horus was the "calendar-man" as well as "time". The Egyptian priests used the metaphor that he was the Bull that defended the symbolic fenced world. In Sumeria there was a period in which the mythological characters were half-human and half-animal. Best examples for this kind of half human characters

are Gilgamesh and his friend Enkidu, who were often portrayed with bull-legs and tail.

In Mesopotamia Sargon of Akkad (ca 2300 BC) seems to have brought a new style into the seals. In the seal the asterism are represented by nearly fully human like figures. Corresponding to this were the specialised priestesses and priest in the different shrines and temples. There are finds of Indus type seal, amulets and tokens in Mesopotamia and that proves that there was inter change of culture. In the Sumerian texts we find even that they used the idea of Seven Sages. There are many cartoons like pictures depicting the combined constellations. For example take the case of centaurs used in all three cultures. It has variety of combinations; like horse body, bird wings and human face. Such kinds of creatures are called chimeras. These chimeras like creatures are at middle stage of development in the evolution of zodiac symbols. (There are three different stages). In the final stage of zodiac development, human characters are preferred by priestly class than animal symbols. This model of zodiac picturisation is being labelled as “humanised symbols” by Benght Hemtun.

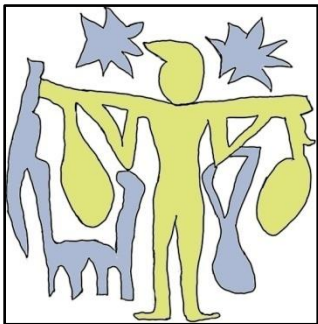


Figure 13: Water carrier.

One of the examples for this kind of humanised symbol is the representation of amulet shown here. This amulet was found in Sumer and it is influenced by the Indus Symbolism as per observation of Hemtun. This image of water carrier represents a deity but generally these kinds of depictions are not there in the Sumerian style. Because of that reason, Benght Hemtun concludes that this design of this amulet has been influenced by Indus culture. The "Waterman" is Aquarius and symbolises the water carriers and period of inundation (rainy season). This amulet portrays a normal every day scene of street life. It would have been common in those days to carry water to houses, which were not provided with wells of their own.

This above said assumption of “waterman” of Hemtun does not really explain the character in the amulet. This symbol has to be analysed in the light of some religious practices of Dravidian societies. Carrying a “Kavadi” is a religious practice associated with worship of god Murugan in Tamil society and it is very popular and regularly practiced even now. Kavadi is a kind of small decorated palanquin-like structure carried in honour of god Murugan. The small palanquin, which is being carried today, looks like a modified form of water carrier

pole. The water carrier is not a deity, but a devotee, who carries the Kavadi containing offerings to god. Most probably, the worshippers of that time might have carried some offerings like newly harvested grains and some homemade sweets as an offering to the temple of god.

It is likely that he was carrying those offerings to the temple of Aries (goat constellation). This association is being made because goat constellation and Aquarius constellation are side by side, and a relationship between these two constellations had to exist, to make it lively and easier to remember. Further goat is the first god worshipped by Sumerians and is later termed as a form of Zeus worship by Herodotus. Further careful observation of seal reveals that the devotee is carrying an additional third bag in his left hand like a railway porter; this additional bag coincides with Capricorn constellation. On the right side of the devotee there is an animal like figure which coincides with Cetus constellation. In addition to that two stars are presented on both sides of his head very prominently. The overall conclusion is that this amulet is not merely illustrating a single constellation but group of constellations.

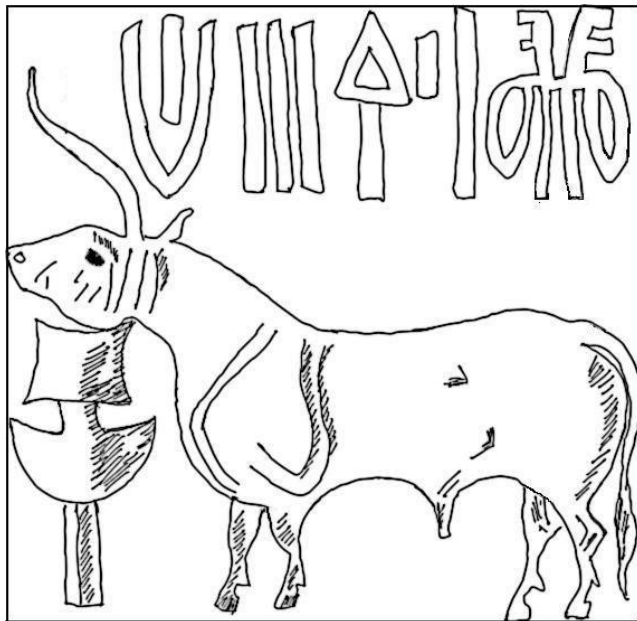


Figure 14: Indus seal - unicorn

Unicorn

Bengt Hemtun observes that figures of unicorn and ritual vessel are deceptive and indicates something else other than what is portrayed. The vessel before the bull is generally explained as ritual utensil. Hemtun is of the view that the sign before the bull looks like a representation of a sailing ship, probably used by the traders of that time. His conclusion is that this seal points toward the sailing time. There is a possibility that this assumption is right because the sailing season in Arabian Sea is a specialized knowledge. During the south west monsoon the trade winds blow from the direction of Arabia towards India, after some time the reverse monsoon (North East monsoon) sets in and the winds start blowing from Indian coast toward Arabia. What the Arabian and Indian sailors had was special knowledge of this wind movement and they sailed through

this big sea in a jiffy. So there is a point in the observation of Hemtun that this seal represents the sailing season.

Many of the seals are found in Mohenjo Daro that must have been an important port to the international trade. Unicorn and the "ship" in the corner could be the symbol of the fellowship of traders. But Iravatham Mahadevan is of different view; he is of the opinion that the ritual vessel looks like a filter which could have been used for extracting the soma juice mentioned in the Rig Veda. Mahadevan belongs to "Dravidian school of scholars" on the subject of origin of Indus culture; such a conclusion that the vessel was a filter for extracting soma juice contradicts his own stand. Hence he is not able to come out with a conclusive statement on this matter. Now, the view taken in this book is that authors of IVC were farmers from Sumeria, and they were speaking IE language at the time of entry into Indian sub continent. This conclusion leads to further postulation that the Sumerian priests were the authors of Vedas also. If such a hypothesis is adopted there is no contradiction in Mahadevan's statement. His suggestion of soma filter perfectly explains this symbol.

Conclusions of Benght Hemtun

The final conclusion of Benght Hemtun is that there is great similarity between Scandinavian ancient symbolism and ancient cultures of Middle East and Egypt. He is tracing back the roots of ancient European civilisations to the source at Middle Eastern and Egyptian civilisations. He further observes that the calculation of calendar year was based on many agricultural myths (rural myths) in the beginning and gradually it changed with the introduction of city culture. In course of time the source of ancient rural knowledge is forgotten and bonds to fertility and environment has faded out. Myths and legends try to sort out and find a model out of the ancient myths for solving new problems. In this process number of myths grow and comes to a chaotic level. Finally, the confusion of myths come to such a level that help of priests is needed for sorting it out meaningful myths from worthless ones and to convey the same to ordinary people.

CHAPTER- X

ASTRONOMY AND CALENDAR

A Nakshatra (or) lunar mansion is one of the 27 or 28 divisions of the sky, identified by the prominent star(s) in them, that the Moon passes through during its monthly cycle, as used in Hindu astronomy and astrology. Therefore, each represents a division of the ecliptic similar to the zodiac ($13^{\circ}20'$ each instead of the 30° for each zodiac sign). The orbit of the moon is 27.3 days, so the Moon takes approximately one day to pass through each Nakshatra.

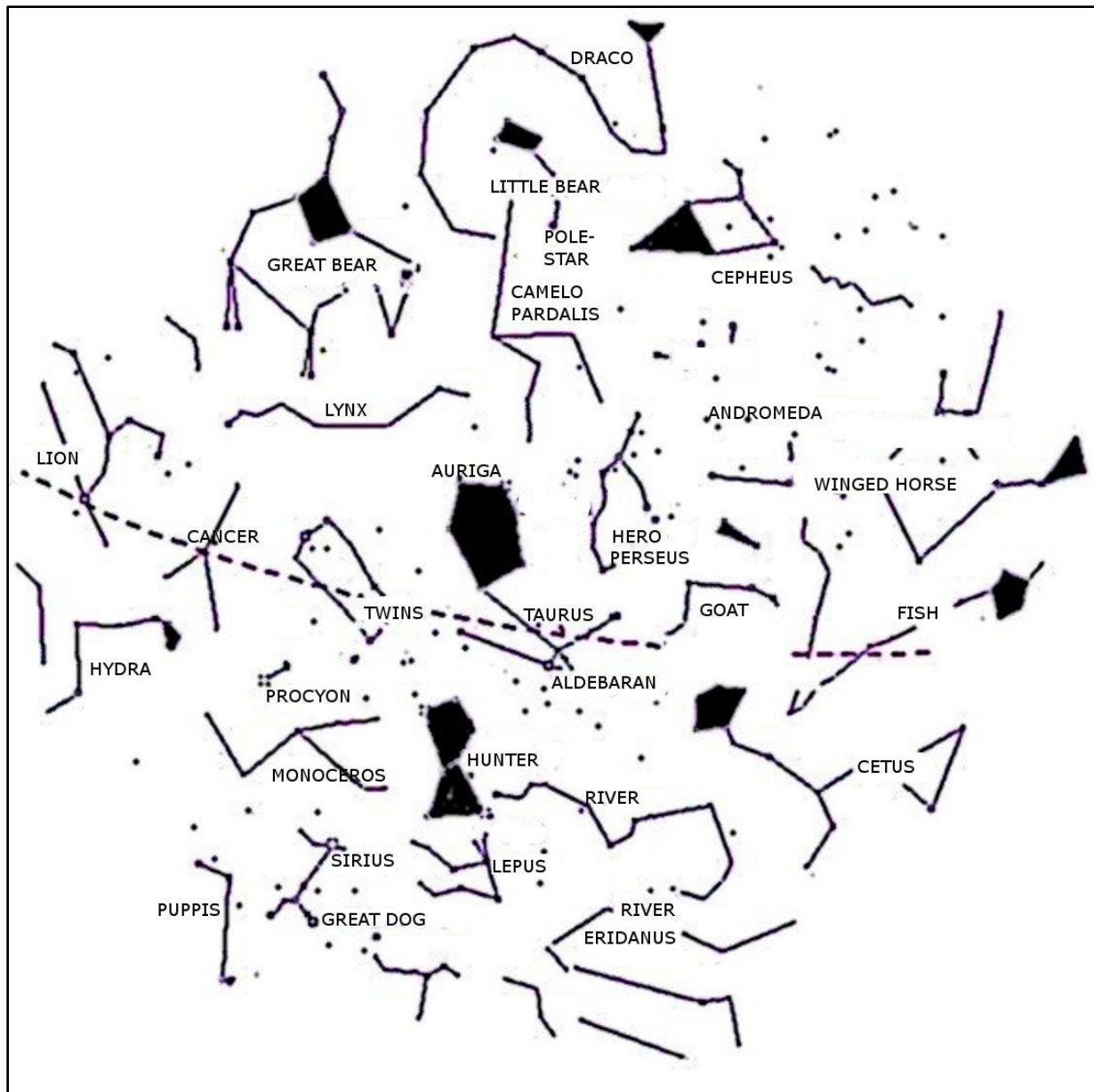
The starting point for the Nakshatra is the point on the ecliptic directly opposite to the star Spica called Chitra in Sanskrit (other slightly-different definitions exist). The ecliptic is divided into each of the Nakshatra eastwards starting from this point. The list of Nakshatras is found in the Vedic texts and also in the Shatapatha Brahmana. The first astronomy text that lists them is the Vedanga Jyotisha of Lagadha. As per Hindu mythology the Nakshatras, were invented by Daksha, and are personified as daughters of the deity and as mythological wives of Chandra, the moon god. Some even make them the daughters of Kashyapa, the brother of Daksha.

Each of the Nakshatra is governed as 'lord' by one of the nine grahas in the following sequence: Ketu (South Lunar Node), Shukra (Venus), Ravi or Surya (Sun), Chandra (Moon), Mangala (Mars), Raahu (North Lunar Node), Guru or Brihaspati (Jupiter), Shani (Saturn) and Budha (Mercury). This cycle repeats itself three times to cover all the 27 Nakshatras. The lord of each Nakshatra determines the planetary period known as the Dasha, which is considered of major importance in forecasting the life path of the individual. (Nakshatra) (Wikipedia, 2009)

Old Babylonian astronomy

Old Babylonian astronomy refers to the astronomy that was practiced during and after the First Babylonian Dynasty and before the Neo-Babylonian Empire. The Babylonians were the first to recognize that astronomical phenomena are periodic and apply mathematics to their predictions. Tablets dating back to the Old Babylonian period document the application of mathematics to the variation in the length of daylight over a solar year. Centuries of Babylonian observations of celestial phenomena are recorded in the series of cuneiform tablets known as the *Enuma Anu Enlil*. The oldest significant astronomical text that we possess is Tablet 63 of the *Enuma Anu Enlil*, the Venus, which lists the first and last visible risings of Venus over a period of about 21 years. It is the earliest evidence to show that planetary movements also have recognizable periodic movements.

The other Babylonian astronomy book “*Mul-apin*”, contains catalogues of stars and constellations as well as schemes for predicting heliacal and settings of the planets. This book also records lengths of daylight as measured by a water clock, gnomon, shadows, and intercalations.



Map 10: Sky map

Lunar calendar

A lunar calendar is a calendar that is based on cycles of the moon. The only widely used purely lunar calendar is the Islamic calendar or Hijri calendar, whose year always consists of 12 lunar months. A feature of a purely lunar year, on the Islamic calendar model, is that the calendar ceases to be linked to the seasons, and drifts each year by 11 days (or 12 days in case of leap year), and comes back to the position it had in relation to the solar year approximately every 33 Islamic years. It is used predominantly for religious purposes. In Saudi Arabia, it is also used for commercial purposes. Most lunar calendars, except the Hijri, are in fact lunisolar. That is, months are kept on a lunar cycle, but then intercalary months are added to bring the lunar cycles into synchronisation with the solar year. Because there are about twelve lunations (Lunar months) in a solar year, this period (354.37 days) is sometimes referred to as a lunar year. (wikipedia)

Lunisolar calendars

Most lunar calendars are, in fact, lunisolar; such as the Chinese, Hebrew, and Hindu, and most calendar systems used in antiquity. All these calendars have a variable number of months in a year. The reason for this is that a year is not evenly divisible by an exact number of lunations, so without the addition of intercalary months the seasons would drift each year. This results in a thirteen-month year every two or three years. Lunar calendars differ as to which day is the first day of the year. For some lunar calendars, such as the Chinese calendar, the first day of a month is the day when an eclipse appears in a particular time zone. Many other lunar calendars are based on the first sighting of a lunar crescent. The length of a month orbit/cycle is difficult to predict and varies from its average value. Because observations are subject to uncertainty and weather conditions, and astronomical methods are highly complex, there have been attempts to create fixed arithmetical rules. The average length of the lunar month is 29.53 days. This means the length of a month is alternately 29 and 30 days. (wikipedia)

Heliacal rising

The heliacal rising of a star (or other body such as the moon, a planet or a constellation) occurs when it first becomes visible above the eastern horizon at dawn, after a period when it was hidden below the horizon or when it was just above the horizon but hidden by the brightness of the sun. Each day after the heliacal rising, the star will appear to rise slightly earlier and remain in the sky longer before it is hidden by the sun. Eventually, the star will no longer be visible in the sky at dawn because it has already set below the western horizon. This is called the heliacal setting. A star will reappear in the eastern sky at dawn approximately one year after its previous heliacal rising. Because the heliacal rising depends on the observation of the object, its exact timing can be dependent on weather conditions. (Wikipedia)

Not all stars have heliacal risings: some may (depending on the latitude of observation on the earth) remain permanently above the horizon, making them always visible in the sky at dawn, before they are hidden by the brightness of the sun; others may never be visible at all (like the North Star in Australia). Constellations containing stars that rise and set were incorporated into early calendars or zodiacs. The ancient based their calendar on the heliacal rising of Sirius and devised a method of telling the time at night based on the heliacal risings of 36 stars called decan stars (one for each 10° segment of the 360° circle of the zodiac/calendar). The Sumerians, the Babylonians, and the ancient Greeks also used the heliacal risings of various stars for the timing of agricultural activities.







Jyotish wheel










The jyotish wheels are used by present day astrologers, this wheel is prepared according to jyotisha vedanga and it shows various days based on Nakshatra (star) constellations. It looks like that jyotisha vedanga had preserved the Indus calendar and is being used in present day for astrology instead of being used as calendar. In the present day secularized calendar, “days” are numbered and counted from 1 to 30 days, whereas in Indus period the days were named after individual names of Nakshatras. These Nakshatra names are still available in present day panchangams and are being used in scheduling of religious festival days. In present day panchangam, two kinds of calendars are being presented together. First is lunar calendar and second is luni-solar calendar. The lunar calendar uses twenty eight names (for 28 days), whereas









luni-solar calendar counts the days on number basis as in modern calendar. The luni-solar month is divided into two halves of 14 days each, 14 days of waxing moon and 14 days of waning moon. The existence of two calendars shows that the present day calendar is retaining old lunar calendar and also evolved to adopt the luni-solar calendar. Thus the continuity of Indus culture is being maintained in Indian calendars also. This theory being proposed in this book is that during the Indus period, each of the day was assigned with a Nakshatra name and not number. The details are as given below in the table.








The Indus seals could not be deciphered properly because the context under which these seals were used is not known. Because of that reason the explanations offered so far are unsatisfactory or explains only part of the signs, which are doubtful. Now with the new theory that Indus sites were necropolis not metropolis there should be some proper explanation for the seals. The new theory proposed in this book is that the symbols represent the “star constellations” and in turn the star constellations represent days of the moon calendar month. All these details are listed out and tabulated. The details are as per the table given below:






Jyotish wheel table







	NAKSHATRA Rasi/ Indian zodiac/ Western zodiac/ Location	Sanskrit meaning	Ruler (Earlier Moon gods)/ Deity (later solar gods)	Body part of Kala- Purusha	symbol	Indus symbol
1	Asvini/Dasra/ Dasradevata/ Mesha Aries Beta @gamma Arietis	Possessing horses/ The horse woman/ ASvaryuj= she who yokes horses/ mounted on horseback/ cavalier/ horse tamer	Ketu Kumara	Top of foot   goat	Horse head/ Horse/ Goat in goat seal (seem to be earlier period symbol.) There is no horse symbol but Aswins are described as great medicine men and honey bee and	Honey bee- -----  Honey comb 










					honey comb are symbols of them	
2	Bharani/Yama/ Mesha Aries 35,39,& 41 Aries	BharaNa= Act of bearing/ also in the womb/ Aries=	Shukra Yama= God of Death	Sole of foot  Sole of foot is not available, may be the pedestal should be construed as the sole of foot	Yoni(Vagina)/ or Elephant	Yoni 
3	Kritika/Agneya/ Mesha-Vrishabha Aries- Taurus Pleiades	Belonging or relating to fire or its deity Agni/ One who cuts	Ravi Agni	Head of kala- Purusha 	Razor/ Cutter/ scissors/ Flame/Knife/ spear	Cutter  
4	Rohini Brahmi Vrishabha=bull Taurus Alpha Tauri i.e. Aldebaran	The growing one/or the red one/ also a red cow/ Daughter of surabhi/ Kamadhenu Figured by wheeled vehicle/temple/ fish	Soma Brahma/ Prajapathi Auriga constellation is part of bull constellation in earlier period, later it became the sacred tree- Ficus religiosa	Fore head of Kala- Purusha  Asko Parpola says that this symbol looks like a cow's head. It looks like the Kalan's fore-head, which is the head of a bull.	Temple/ Ox-cart/ Chariot/ Banyan tree Fish/ Vrishabha Is bull -----	Temple/ ox-cart/  wheeled vehicle/  -----
5	Mrigashira/ Agrahayani/ Vrishabha-Mithuna/ Taurus-Gemini/	Name of the demon(or) vritra in the form of deer slain by Indra/ -----	Kuja Chandra	Eye brows of Kala- Purusha	The Deer's head/ Group of lotuses	Deer , antelope 

	Head of Orion	Game of any kind , (Esp.) deer, gazelle, antelope, Stag, musk deer				
6	Aarda/ Aarudra (in Tamil)/ Mithuna/ Gemini (Twins) Betelgeuse; Alpha Orionis	Wet, moist, damp, moisture, Fresh, succulent, green (as a plant, living, fresh, new, soft, tender, fresh ginger	Raahu Rudra	Eyes of Kala Purusha Quiver-Gemini 	Human Head/ Moist, damp, wet, dew- fresh, not dry, succulent, green,/ Tear drop/ A Diamond	Moist- Succulent; green plants 
7	Punarvasu Castor and Pollux/ Alpha and beta Geminorum	Twin, doubled, two fold, a double band or bandage, the twined ones	Guru Earth as Aditi (mother of Gods)	Nose of Kala- Purusha 	Quiver of arrows/ archer's bow	Archer with bow 
8	Pushya Sidhya / Tishya ----- Kataka/ Karka (Crab) Cancer Canceri	The blossom or flower/i.e. the uppermost or best of anything./ nourishment Tishya is the name of heavenly archer	Shani ----- Brihaspati (Guru/ Jupiter)	Face of kala- Purusha 	Cow's udder (earlier period) ----- (Later period symbols) Flower/ Lotus/ Arrow and Circle	Udder/ Teat. Flower  Later period Heavenly archer
9	Aslesha/ Naga/ Karka (crab) Cancer/ Head of hydra- Sigma hydrae	Intimate connection, contact, embracing, intwining, entanglement Serpent Bhuja= A bending curve, a curve; the arm, the breast, the hand, the trunk of an elephant, branch, bough	Budha Sarpas the snake that became a god/ Naga	Ears of Kala- Purusha 	Coiled snake	Coiled snakes 

10	Magha/ pritiya Simha/ Leo/ Leonis/ Regulus (star)	A gift, reward, bounty, wealth, power, a kind of flower, drug or medicine, a species of grain.	Ketu	Auspicious events/ no body parts.	Palanquin/ royal chamber containing a throne./ Royal throne	
11	Purva Phalguni Simha ----- Leo Leonis	Best portion, the womb, uterus, vulva, vagina, place of rest, receptacle, seat, abode, home, lair, seed grain, part of fire pit, a mine, copper, name of a river	Shukra	Right hand of kala 	Yoni, A swinging hammock, Front legs of a cot	Yoni, Vagina, Seed grain 
12	Uttara Phalguni/ Aryamna Simha- Kanya Leo – Virgo Leonis Denebola (star)	The latter reddish one, the spring season, small, minute, feeble, weak, pith less, un substantial, insignificant, worthless	Shukra	Right hand  Right hand of Kalan is forked or bearing a fork/Trishul	Bed, Back legs of a cot/ four legs of a cot/ Hammock	Right hand, Bed. 
13	Hasta(Hand) Kanya Virgo Corvus (The Crow)	The hand, holding in the hand, an elephant's trunk, the fore arm, some time identified with part of the Corvus constellation	Soma Savitri	Fingers of the hand (a closed hand) of kala-Purusha 	Palm/ the hand.	HAND/ Elephant/ Crow 
14	Chitra Kanya – Tula Virgo- Libra Spica: Alpha Virgin is	Conspicuous, excellent, distinguished, bright, clear, bright-coloured,/ Variegated, spotted, speckled.	Kuja Tvashtra, the celestial architect	Neck of kala-Purusha 	Bright jewel Pearl	Variegated spots- latest seal
15	Swati	Vayavya= Soma	Raahu	Chest of Kala-	Sapphire/	Soma vessels

	Thula Libra The Golden Star- Arcturus Alpha Bootis	vessels shaped like mortars Pavana= purifier, purification, clean, pure, wind, or god of wind, breeze , air, a house holder's sacred fire,	Vayu the Wind a broom, winnowing of corn, an instrument for purifying grain (winnowing fan)	Purusha	A sword/ shoot of a plant / coral	shaped like a mortar? Winnowing fan?
16	Vishaka – Radha Thula- Vrischika Libra – Scorpio Librae	The forked ,two-branched Radha = the delightful Lightning; branched / forked	Guru/ Indra and Agni Attitude in shooting (standing with the feet a span apart)	Breasts of Kala Purusha	Potter's wheel/ Victory arch/  Forked hand	Man bearing fork,  Fork is equal to lightning
17	Anuradha – Maitra----- Vrischika ----- Scorpio Scorpionis	Additional Delight - -- After Radha Maitri = friendship, friendliness, benevolence Mitra = name of an Aditya Generally invoked with Varuna and Aryaman	Shani ----- Mitra – Varuna , the twin gods Varuna = keeper of order & law	Stomach of Kala Purusha 	Umbrella Triumphal arch lotus	Vrischika (Scorpion) Symbol 
18	Jyestha – Indra Vrischika ----- Scorpio Antares; alpha Scorpionis	Zakra Strong, powerful, Mighty Antares = anti Aries, rival of mars	Budha ----- Indra	Right Torso	Circular Talis man(Amulet) / Ear ring/ Brace let	Brace let, Circular Talis man 
19	Mula – Vichruta – Kali	The root.	Ketu	Left Torso of kala Purusha	Crouching lion	A bunch of roots tied together.

	Dhanus Sagittarius The scorpion's tail/ Scorpionis		Nritti another name of kali	----- 	A bunch of roots tied together. Elephant goad	
20	Purva Ashadha/ Apah Dhanus Sagittarius Sagittarii	The former unconquered/ The former invincible/ Ashadha = A staff made of palasa wood, carried by the student during performance of certain vows Purva = the fore part or eastern, to the east of, former, prior, Preceding	Shukra ----- Apah, ruling water, one of the eight demigods called vasus/ Aha the vasu ruling the atmosphere Apa = to drink, to suck up, a quantity of water, to absorb, to take away.	Back - Dorsal of kala-Purusha  Back view shows the tail, because of that tail has been shown in the symbol Tail is worn by tribal chiefs of Sumeria as mark of leadership in hunter stage societies.	Front of square A brick used for the sacrificial altar ----- Preceding number eight ----- An ancestor, fore father, or an elder brother Elephant tusk Fan Winnowing fan	Front of brick/square 
21	Uttara Ashadha Dhanus – Makara (crocodile) Sagittarius – Capricorn Sagittarii	Uttara = upper, higher, superior Northern Ashadha = invincible	Ravi ----- Visve Deva = Guide Visva = universal -----	Waist of Kala – Purusha	Back of square A brick used for the sacrificial altar Small bed	Crocodile, Back of square 
22	Shravana Makara ----- Capricorn Aquila, the Eagle	Zru=to hear, listen Srama = lameness sickness, the ear, Limping, three foot steps	Soma ----- Vishnu	Genitals of Kala – Purusha  The arrow indicates the genital of kala-Purusha and temple over it	Arrow, three foot prints side by side Ears -----	Arrow. 

(23)	Dhanistha – Sravishtha Makara – Kumbha ----- Capricorn – Aquarius Delphini	The most famous/ the most heard of/ the wealthiest/ Dhanistha = following the beat (or) following the Drummer	Kuja ----- The eight Vasus	Anus of kala – Purusha 	Drum Flute	
(24)	Satabisha – Varuna Kumbha ----- Aquarius Aquarii	Zata = one hundred, ----- Bisha a shoot or sucker, a film or fibre of water Lilly or lotus, or an underground stalk of any plant -----	Raahu Varuna The whole lotus plant tAraka = causing or enabling a pass over, meteor, shooting star, a helmsman, a float, a raft	Right thigh of kala Purusha	Flower ----- A circle enclosing a space Empty circle 1000 flowers or stars	Circle   water carrier
25	Purva Bhadrapad ----- Kumbha/ – Meena ----- Aquarius/ – Pisces Pegasi	Aja= goat, =one footed, ----- Beautiful front feet (of Shiva?)	Guru Aja = goat Ajopada = Rudra	Left thigh 	Front legs of a funeral cot/, The first/ Front end of a bed Swords Man with two faces	Front leg of cattle 
26	Uttara Bhadrapad –/ Ahirbudhnya/ Meena ----- Pisces Pegasi and Andromeda	The later one who possesses lucky feet of a stool or a bench ----- Beautiful back feet/ king of nagas / circle formed by snake biting its own tail. /	Shani/ Ahir Budhiyana, ----- the serpent or dragon of the deep centre of earth's Aura	Lower legs/ Or calves of kala-Purusha  Legs of Kalan are cattle legs (bull's leg) 	Back legs of cot Twins Snake in the water	Hind leg of a cot/ cattle 


		Name of mount Meru		Kalan carrying leg symbol.		
27	Revati – Paushna ----- Meena ----- Pisces Pisces	Some time identified with Aditi or with Durga. ----- The wealthy ones or the shining ones (applied to cows & the waters)	Budha Pushan the conductor/ ----- Pushan is a Vedic deity, originally connected with sun, therefore surveyor of all things and conductor of journeys.	Abdominal cavity or groin of Kala – Purusha ----- This body part does not coincide with the regular correspondence shown with the other body parts and Nakshatras in the sky map.	Fish/ or pair of fish	Fish. /or pair of fish 
28	Abhijit Inter calary Nakshatra Location Lyrae/ Vegae	Lyra constellation's name is derived from lyre, a stringed musical instrument				

Table 7: Jyotish Wheel.

(Barbara, 2009)And (Wikipedia, 2009)

Analysis of these symbols shows that there were two sets of symbols used in IVC. One set of symbol is based on Kalan body parts and other set was based on various kinds of logos depending on the shape of constellations. Out of these two sets of symbols, the Kalan symbols seems to be older one, most likely it was used by moon-priests of IVC. The other way of interpreting it will be that the Dravidians (M-20) might have used these Kalan symbols. The second set of symbols were based on variegated symbols, was used by later day sun-priests. The exact period, on which the change occurred could not be determined, most

probably the Sumerian farmers who entered India after the Dravidians might have used these variegated symbols.


Proper separating out of seals based on age of seal (determined through radio carbon technique) will help in determining the exact time period of this change. This problem is a compounded one because various groups of people for many centuries have used this necropolis as their burial ground. But so far archaeologists have worked on the assumption it was the work of single group of people. The artefacts available for Indus excavation sites should be re-evaluated to arrive at proper conclusion.








CHAPTER-XI








NAVAGRAHAS


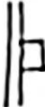

Planetary worship is still in practice in India, and occupies a prominent position in the religious life of India today. Many diseases and other troubles of earthly existence are ascribed to the malign influence of angered planetary deities, whose wrath is to be pacified. Monumental representations of planets start appearing in North India in the Gupta period (7th century AD) and spreads to south India by 11th century AD.

The group of nine planets comprises the five true planets visible to naked eye, the sun and moon, plus Raahu and Ketu. Raahu is the name of eclipse demon. According to Hindu mythology Raahu swallows sun and moon resulting in eclipses. Ketu originally seems to refer to smoke, which arises at the time of conducting Yajnas (fire sacrifice) and reaching the heavens. Thus Ketu makes a connection possible between heaven and earth. However, in 6th century AD, Varahamihira interpreted Ketu as the tail of Raahu, said to have the form of a snake, and connected Raahu and Ketu with the ascending and descending nodes of the moon. The relevance of this analysis on the issue of planets is that, most likely the Indus people were planetary worshippers like the present day Hindus and many of the symbols of IVC seals are depicting various planets and astronomical events. Some of the symbols are identified and given in a tabular form; detailed explanations are also given against each symbol. (Parpola, 2000)

NAVAGRAHAS			
SURYA	Sun		Surya is the chief solar deity, one of the Adityas, son of Kashyapa and one of his wife Aditi, of Indra, or of Dyaus Pitar (depending by the versions). He has hair and arms of gold. His
Ravi-war			

Sunday			chariot is pulled by seven horses, which represent the seven chakras. In Hindu religious literature, Surya is notably mentioned as the visible form of God that one can see every day. He represents the Soul, the King, highly placed persons or Father.
CHANDRA Soma-war Monday	Moon 	Right corner indicates moon	Chandra (moon) is also known as Soma and identified with the Vedic Lunar deity Soma. He is described as young, beautiful, fair; two-armed and having in his hands a club and a lotus. He rides his chariot (the moon) across the sky every night, pulled by ten white horses or an antelope. He is connected with dew, and as such, is one of the gods of fertility. He is also called Nishadipati (Nisha=night; Adipathi=Lord) and Kshuparaka (one who illuminates the night). He is married to daughters of Daksha Prajapathi. He has therefore 27 wives, representing twenty seven Nakshatras (constellations). Budha (the planet Mercury) was born to Soma and Taraka.
		Square means moon	
MANGALA--- ----- Mangal-war ----- Tuesday	Mars  Three triangles means mountain, mars is god of mountain like Murugan	Triangle is sign of mars -----  Also the triangle may be indicating the Trigona houses concept	Mangala is the god of Mars, the red planet. Mars is also called Angaraka ('one who is red in colour') or Bhauma ('son of Bhumi') in Sanskrit. He is the god of war and is celibate. He is considered the son of Prithvi or Bhumi, the Earth Goddess. He is the owner of the Aries and Scorpio signs, and a teacher of the occult sciences (Ruchaka Mahapurusha Yoga). He is painted red or flame colour, four-armed, carrying a trident, club, lotus and a spear. His Vahan (mount) is a ram.
BUDHA	Mercury	Holding a sword, a club and a shield	Budha is the god of the planet Mercury and the son of Chandra (the moon) with Tara (Taraka). He is also the god of merchandize and protector of Merchants. He is represented as being mild, eloquent and of greenish colour. He is represented holding a sword, a club and a shield, riding a winged lion.
Wednesday		Mount eagle	
Budh-war		(Or) holds a sceptre and lotus	
Brihaspati	Jupiter	Holding stick,	Brihaspati is the name of a Vedic,

		lotus and beads	personification of piety and religion, the chief priest of prayers and sacrifices, represented as the Purohita of the gods with whom he intercedes for men. He is the Lord of planet Jupiter. He represents knowledge and teaching. According to Hindu scriptures, he is the guru of the Devas and the arch-nemesis of Shukracharya, the guru of the Danavas. He is also known Guru, the god of wisdom and eloquence.
GURUWAR			
Thursday			
SHUKRA Shukra war Friday	Venus 	Eastern corner of Astro chart is place of Venus.	Shukra, the Sanskrit for "clear, pure" or "brightness, clearness", is the name of the son of Bhrigu and Ushana, and preceptor of the Daityas, and the guru of the Asuras. He is Rajas in nature and represents wealth, pleasure and reproduction. He is of white complexion, middle-aged and of agreeable countenance. He is described variously mounted, on a camel or a horse or a crocodile. He holds a stick, beads and a lotus and sometimes a bow and arrow. In Astrology, there is a Dasha or planetary period known as Shukra Dasha which remains active in a person's horoscope for 20 years. This Dasha is believed to give more wealth, fortune and luxury to one's living if a person has Shukra positioned well in his horoscope as well as Shukra being an important benefice planet in his/her horoscope.
			
	 	Venus is said to be chakra, someone who moves fast See the same cross symbol on the first symbol of Venus	
Shani	Saturn	Holding sword, arrows and two daggers	Shani is one of the nine primary celestial beings in Hindu astrology (that is, Vedic). Shani is embodied in the planet Saturn. The origin of word Shani comes from the following: 'Shanaye Kramati SA' i.e. the one who moves slowly. Saturn takes about 30 years to revolve around the Sun, thus it moves slowly compared to other planets, thus the Sanskrit name Shani is actually a demi-god and is a son of Surya (the Hindu Sun God) and his wife Chhaya. It is said that when he opened his eyes as a baby for the very first time, the sun went into an eclipse, which clearly denotes the impact of Shani on astrological charts (horoscope).
Saturday -----Shani-war		Mounted on crow	
		Often depicted in dark colour, clothed in black as ugly, old lame and having long hair, teeth and nails	

Raahu	No planet	North lunar node 	Raahu is God of the Ascending / North lunar node. Raahu is the Head of Demon Snake that swallows the sun or the moon causing eclipses according to Hindu scriptures. He is depicted in art as a dragon without a body riding a chariot drawn by eight black horses. He is an Asura who does his best to plunge any area of one's life he controls into chaos. The Raahu kala is considered inauspicious.
			According to legend, during the Samudra manthan, the Asura Raahu drank some of the divine nectar. But before the nectar could pass his throat, Mohini (the female avatar of Vishnu) cut off his head. The head, however, remained immortal and is called Raahu, while the rest of the body became Ketu. It is believed that this immortal head occasionally swallows the sun or the moon, causing eclipses. Then, the sun or moon passes through the opening at the neck, ending the eclipse.
Ketu	No planet  Flag	South lunar node	Ketu is the Lord of Descending/South lunar node. Ketu is generally referred to as a "shadow" planet. He is considered as Tail of the Demon Snake. It is believed to have a tremendous impact on human lives and also the whole creation. In some special circumstances it helps someone achieve the zenith of fame.
	flag 		Astronomically, Ketu and Raahu denote the points of intersection of the paths of the Sun and the Moon as they move on the celestial sphere. Therefore, Raahu and Ketu are respectively called the north and the south lunar nodes. The fact that eclipses occur when Sun and Moon are at one of these points gives rise to the story of the swallowing of the Sun by the Moon.

(Reference: Wikipedia: under the heading Hindu astrology)

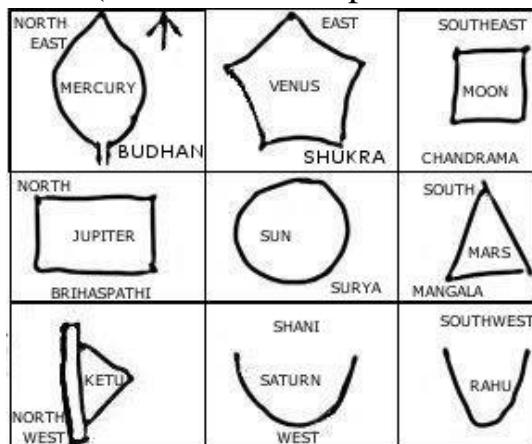




Figure 15: Planetary positions as per Hindu temple.













Generally the Shiva temples in south India contain a separate enclosure for nine planets together in a single platform. For additional details refer chapter.11 of the book “Deciphering the Indus script” written by Asko Parpola. These planets are represented by individual statues and venerated as gods with their own powers. Out of the nine planets Shani (Saturn) is considered as more powerful and have lot of influence on the personal life of a person depending on the planet’s position in a person’s horoscope chart. The symbols of each planet are as per the detail given in the above chart and some of these symbols are appearing among the Indus symbols.



Figure 16: Planet chart (or) Horoscope.

PAGE-83(fig.5.5) of Asko parpola’s book shows the longest continuous Indus inscription. It is a seal from Mohenjo-daro (M-314). Analysis of this seal shows that the top line shows the symbols of five planets known at that time period and the second line shows symbols of three gods Kalan, god of underworld and mother goddess respectively. The triangle may be indicating the “Trigona concept” of astrology. The acute angle of the triangle may be indicating the eastern direction, which is the rising direction of Venus in the evening. The last line is showing the symbols of seven constellations. Overall the seal looks like a chart which might have indicated a kind of horoscope of that time. The details of analysis of symbols are as per the table given below.

S. No	Symbol	Planet		Symbol	Zodiac symbol
1	" 	Wheel with two quotation marks might have specified the second wheel, i.e. moon, whereas single wheel might have denoted sun. (Or) it could be pictogram	9	" 	Trigona sign in horoscope, which shows the important planetary positions within horoscope (see Vedic astrology, Wikipedia) Or the acute angle of the triangle shows the east direction in the horoscope

		of six seasons. (Or) it could be icon of North Star.			This angle shows the movement of the deity Chandra along the horoscope
2		The cap at the top of fish shows that this planet is identified with eastern corner, the fish that first appears in the eastern corner is Venus	10		Virgo/ Kanya/ Chitra / 14 th constellation (Or) Spica star of Virgo constellation as discussed under the heading "sign of double axe"
3		It looks like that this fish indicates mars/ mars (Rudra) with horns / maybe this is the fish with horns.	11		Ajopada/ single footed (Hoof print of a goat) / Purva Bhadrapad/ 25 th constellation
4		Fish with dot may be Shani	12		Sagittarius/ Purva Ashadha/Apah/ 20 th constellation (Or) may be symbol of Lynx + Cancer constellations --- Refer to seal depiction under the heading "sign of double axe" (Or) may be allelographs of Sagittarius constellation--- It looks like that these symbols are of later day period and most probably belongs to Greek period.
5		Planet mercury/ Budhan Arrow symbol indicates Budhan Budhan is son of moon	13		(Or) Castor and Pollux/ Punarvasu/ 7 th constellation
6		Funeral urn/ symbol of god of death/ symbol of Kalan/ Shiva	14		Trishul/ fork/ Vishaka /16 th constellation
7		God of underworld (Or) this symbol might be depicting a rope as in Egyptian hieroglyphics tethering rope / in Indian mythology rope means rope of death/ rope used by Yama to take away the life from a person.	15		Capricorn/ crocodile/ Uttara Ashadha/ 21 st constellation
































8		Earth- mother goddess	16		The stars side by side/Shravana/Aquila constellation as per jyotisha vedanga. (Or) May be part of Perseus constellation as discussed under the heading “sign of double axe”
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Table 8: Details of Horoscope chart

Astronomical symbols found among the Indus symbols

S. N O	SYMBOL	EXPLANATION	S.N O	SYMBOL	EXPLANATION
1		Amavasai	15		Moon SE –corner is indicated
2		Circle with spot is sun	16		Moon- / or circle with spot is sun
3		Astrology chart- Eastern corner of the chart- Venus	17		Mars—triangle symbol
4		Venus allele	18		Mars-allele ----- Mountain
5		Venus allele	19		Two planet interaction- Venus and Saturn
6		Venus allele/ (or) Chitra star (star Spica) in Virgo constellation.	20		Amavasai/ Or honey comb
7		Venus-Jupiter interaction	21		Amavasai/ or eclipse- allele
8		Jupiter	22		Eclipse- 1
9		Moon-Ketu-interaction ----- SE-NW planets interaction	23		Chakra-sun

10		Sky god/ as per suggestion of Mahadevan	24		Rectangle- Jupiter
11		Astro-chart-	25		Mercury node
12		Astro-Chart –allele	26		Planets-Astro-chart
13		Moon- first – quarter	27		Two planets crossing- may be eclipse/ (or) Two bangles symbol of Inanna (mother goddess)
14		It looks like a seedling, (or) tree, which represents the womb of mother goddess through which the seedling germinates. (Georg Feuerstein, 2005, p. 121)	28	 	Trishul-planet-mars allele/ Trishul is symbol of Kalan also

CHAPTER-XII

INTERPRETATION OF INDUS SYMBOLS

Indus script remains undeciphered because the lengths of the words available in the seals are short and repetition of similar things and is not tallying with any known scripts. The view expressed in this book is that the origin of Indus civilization lies in Mesopotamia and not a local evolution. Because of the view that Sumeria was the source of IVC origin, the language of Indus valley also might have been similar to the language of that Sumeria. It is a difficult task to ascertain the nature of the language of Sumerian people because it is an extinct language and the Euphrates and Tigris valley had been run-over by various people at various times. Further, it is difficult to ascertain which period of Mesopotamian cultures coincides with that of Indus civilization. The only closest relative to the Indus language was that of Elamites (Southern Iran- Susa). Unfortunately, the proto-Elamite script (c.3100- 2900) is very poorly understood, and not many details are available.

Asko Parpola

He is professor emeritus of Indology at Helsinki University, Finland. He is generally recognized as the world's expert on the Indus script. Asko Parpola has been studying the Indus script for the past 30 years. A grand summary of Dr. Parpola's work "deciphering the Indus script" was published in the year 1994, and it is the basic source for Indus script study and forms the basic foundation on which decipherment work of Indus script could be carried out. Even though the

Indus scripts are not deciphered satisfactorily so far, his contribution to “Indic studies” are great and should be recognized by Government of India by honouring him with “Bharat Bhushan” or some other suitable award.

Iravatham Mahadevan

Mahadevan is another important person involved in the effort to decipher Indus symbols. He is a retired officer from Indian Administrative Service and study of epigraphy is his hobby. He published his monograph on the Tamil Brahmi script and it helped in proper decipherment of Tamil Inscriptions found in temples and caves of Tamilnadu. In 1970, the prestigious Jawaharlal Nehru Fellowship was awarded to him and was asked to work on the problem of Indus Script. Full details about his ideas on Indus Scripts can be found in his interview published in Harappa.com. (1998 interview)

Steve Farmer and others

The other group interested in deciphering Indus script consists of S.Farmer, The Cultural Modelling Research Group, Palo Alto, California; Richard Sproat and Michael Witzel. Recently S. Farmer has come out with a statement that Indus scripts are something like religious symbols and does not carry any phonetic value and symbols did not evolve in linguistic direction even after in use for 600 years. He further suggests that the Indus symbols were used as non-linguistic symbol system that served key religious, political and social functions without encoding speech or serving as formal memory aids.

This opinion is in contrast to the opinion of Parpola and Mahadevan who believe that the script carries some alphabetic or phonetic value. One point should be clear that just because they used symbols, does not mean that they were barbarians. The symbols carried astronomical values, but might not have carried any phonetic value. It does not make modern day astronomer an illiterate person just because he uses some common symbols. In fact modern astronomers are still using same old constellation symbols to describe the new constellations with new symbols. Some old symbols are being used even now and some symbols have been replaced and some symbols have been newly introduced.






Even though the argument of Steve Farmer could be accepted to certain extent, there are still some exceptions to his conclusion. For example, the fish symbol and the ‘U’ symbol does carry some phonetic value as being discussed in the following paragraphs, which shows that there was some phonetic value to the Indus symbol and only problem is that it has not yet been deciphered properly.







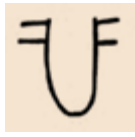
Fish symbol

This is the first symbol to be properly identified by Father Heras; he identified that “meen” in Tamil means ‘fish’ as well as ‘star’. Asko Parpola has shown the use of the fish as symbol for heavenly bodies. It is a symbolism that the stars swim in the heavenly ocean. So far various interpreters had identified this fish applicable both for stars as well as planet. However it looks like that Indus priests were very specific in usage of fish symbol applicable only to planets and not for star constellations. The list of planets in Horoscope chart shows that only planets are symbolised with fish sign, whereas only one star constellation is depicted with fish sign. Fish sign with “bar” indicates month and fish sign with “eastern corner sign” (cap sign) indicates that it is sign of Venus. For other variations in fish signs refer to the details under chapter ‘Navagraha’.



----- This symbol means “month” in Tamil language. (Omniglot.com) But it is not a regular alphabet and is a specialized religious way of writing in wedding cards or other religious functions. This symbol is being used to depict “Month”. It looks like that in Indus period also the symbol  was used to depict a month. It should be noted here that the month symbol “” (mee) is the extended form of ‘’ (Me). “Maatham” means “month” in Tamil, logically the symbol for month should be simply ‘’ (maa) instead of that people are still writing ‘mee’. This could be the effect of ‘meen’ symbol of Indus people. Even now this letter is in usage, it is a specialized form of alphabet. Its origin is the same as “” symbol of Indus civilisation and is being used even now.

<u>Tamil letter</u>	<u>Pronunciation</u>
	Basic letter “Ma”
	Extended form “Maa”
	“Me”
	“Mee”



---Jar symbol

In our quest for new interpretation of the Indus symbol, the key role is being played by this jar symbol. Many of the inscriptions on the seals are ending with this symbol, and this has been identified as jar, but it is not known, what for this jar was used by the Indus people. Wunderlich in his observation saw that the snake motif was occurring frequently in the pithoi found in Minoan palaces. He interpreted it as a symbol of protection of the mummies kept in those jars or funeral urns. There are many kinds of funeral urns some are big enough to keep the mummified body, some are medium sized urn to keep the bones after decomposition of the flesh of the body or remains of bones after burning of corpses, and much smaller ones are used to keep body entrails in case of mummification, as it was done in Egypt. (Wunderlich, 1974)



This jar model sketch is drawn after the vase depicted in the book “Myths and legends” by David Bellingham (David Bellingham, 1996) (page 132) in the narration no detail is given about the location of find, (or) where is it available now? The description says that the vase is decorated with animals that represent the 12 months of the year. Beyond that no details are available except that it is a part of Chinese mythology. In my opinion it looks like a funeral pot which could have been used in Chinese Turkmenistan, which was under the central Asian cultural influence during the Indus period days. It might have been used as a funeral urn depicting various animals as protection to the funeral remains inside the urn. This theory may be a farfetched and imaginative one, but still this “urn” gives a visual idea to the nature of jars used in funeral complexes of Indus culture. These kinds of jars might have been used in the earliest part of Sumerian civilization at Mesopotamia, but by the time it entered into India only symbols were being used but actual pots with these designs were not in use. This problem is further compounded by the fact that the grave robbers used to break the pots to quickly grab the valuable things inside the pots. Because of this reason, we do not get any full unbroken pot specimens.

Parpola suggested in his book that this symbol $\overline{\text{UF}}$ looks like the head of a cow. His observation seems to be logical, the identification of various body parts of Kalan shows that this $\overline{\text{UF}}$ symbol indicates the head of Kalan, which is a head of a bull and not human head. Now the contradiction is that there are two explanations for one symbol. This has to be reconciled. In ancient mythology or astrology all the events happening in earth are influenced by the similar events in

heaven. For every allegorical expression, there were two events; one in heaven and one in earth. It looks like that the UF symbol meant head of Kalan in heaven and meant “Death” in earth (or) burial of a dead body after putting into a Pithoi. Now the relevance of seal correlates with the place of find. As said earlier the Indus culture centres were grave yards and the seals are tokens of identity of the dead persons.

The funeral priests would have used those tokens as a kind of “label card” as a mark of identification to identify the mummified bodies at the burial chamber as well as to remember the month and date of death of the mummified person. These tokens would have helped the priests as well as family members to remind and remember the date of death of a person so that future anniversary memorial ceremonies could be conducted on the proper Nakshatra. It is the regular practice in Hindu custom even now that the dead person is remembered by way of annual ceremonies and the date is decided, based on the month and Nakshatra, the exact date is not required. One additional detail is required in modern time, to determine it is the waxing phase or waning phase of moon. This is necessary in modern calendar because it is a lunisolar calendar and interaction of moon calendar and solar calendar are interpolated all the time. But in the time of Indus culture period they were using only moon calendar, and there was no need to determine the waxing and waning phase. The movement of moon through 27 Nakshatra constellation decides the day (Thithi = moon day)

The third explanation for the UF symbol is that it equalizes the ‘ ᱵ ’ (vu) symbol of Tamil. (Refer to the Tamil symbols in the web site Omniglot.com.) ‘ ᱵ ’ symbol denotes ‘day’ in Tamil and even now it is in usage, but this symbol is not regularly used, it is being used only on the special occasions like marriage invitation or funeral card invitation or some important traditional documents. There is no pictorial connection between UF symbol and ‘Vu’ (day), the connection is a phonetic value. The burial Pithoi is called as ‘vurai’ (vu-rai) in Tamil. In fact there are many more words beginning with ‘Vu’ depicting a pot. (Vu-gai, Vun-dai, and Vun-dial) all of them starting with phonetic value ‘Vu’. In addition to that; the word ‘Vurai’ also meant ‘to live in’. It might have meant that the dead person was living inside the funeral pot. All these examples show that there was phonetic value for UF symbol. Because of this said example the conclusion of Steve Farmer that is partially incorrect. It is likely that many more phonetic values will be decoded after proper deciphering of Indus scripts.



The plain “U” symbol without side attachment of snake motif (plain jar) means sacrificial jar in which blood of sacrificial victim was offered before god. This jar is different from the “funeral jar” mentioned

above. The final conclusion is that the logos mentioned in the seal are pictogram and not a script. All the Indus inscriptions are ending with pictogram “𑀩” means “day” of death preceded by Nakshatra (day= Thithi) and month. Many a times the month names are also similar to the Nakshatra name, because some important and popular names of Nakshatra were being used as month name. The Indus priest were in dilemma, how to differentiate between month and date? That problem was solved by putting “quotation” (“) mark over (or) adjacent to the month symbol. While reading the Indus seal, it should be always remembered that any symbol with quotation mark specify a month.

Arrow symbol (or) spear symbol

After the jar symbol that place was taken over by spear, because the funeral urn was not in use for long time, symbol followed what was currently in practice. Priests started using arrow symbol to mean death instead of jar symbol. There is a possibility that it is the Greek influence after the invasion of Alexander into India, some modern looking symbols pertain to this period. Three parallel stripes of lines indicate the three foot prints of Vishnu in Aquila constellation (or) symbol of Perseus constellation; it is totally new symbol which had not been seen earlier. Asko Parpola has interpreted this as sign of ‘life’, but I feel that it meant exactly the opposite of it, and meant ‘Death’. The seals with arrow symbols should be treated as later day seals, in the last phase of Indus Valley culture. Now it is important to state here that there was a change in funeral practice, along with that “U” symbol also disappears, because the corpses were not being interned in Pithoi but being cremated. Hence it did not make sense to use the “U” symbol; instead of that ↑(arrow) symbols were used to depict death. Most probably, after burial of dead body of the grave was marked by planting a spear (sign of soldier). Because of this reason, the “U” symbol got displaced by spear symbol.

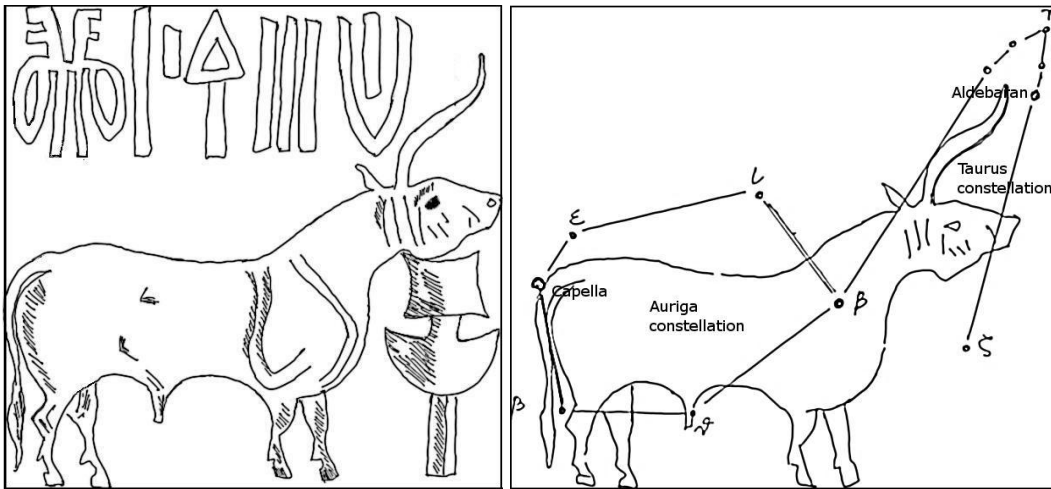


Figure 6: Unicorn Figure 7: Auriga-Aldebaran constellations combined

Unicorn symbol

Unicorn symbol is the most discussed symbol and no conclusion is arrived at on its meaning. Bengt Hemtun says that the unicorn symbol indicates the Taurus constellation and the horns of unicorn points towards the star Aldebaran. His explanation seems to be correct and the picture in the seal beautifully coincides with the star constellation. The International Astronomical Union website has an interesting observation on this Taurus constellation. The narration on the topic “origin of constellations” starts with the remark that the cave paintings at Lascaux in southern France could have been the earliest known sky map depicting the Taurus constellation (The bull figure in the painting). The Pleiades constellation (six stars cluster) is also depicted by way of six dots near the bull head. The painting is 17,300 years old and it shows that the study of constellations have started a full 10,000 years ahead of the emergence of farmers in Anatolia. Man was at hunter stage of civilisation at this time period (20,000BC). (Rappengluck., 1996)

The horn of the bull was used as a pointer by the Indus people; hence they depicted only a single horn instead of double horn. They were well aware that there were no unicorns at that time, and the unicorn is deliberately drawn to show the subsequent generation, it was a symbolism not an existing animal. The vessel before the animal is variously described by different people. Hemtun says that it looks like a sailing boat, and the seal depicts the starting of sailing season. Mahadevan says that it looks like a filter and most probably it was a kind of filter used for soma juice, but he himself points out the contradiction that soma is known to later day suppose to be Indo-Europeans and not Indus people. In

this book, the possibility of Indus people themselves being the authors of Rig Veda is being discussed, if that theory is accepted, the possibility of this vessel being soma filter is very much possible.

Closer look of the vessel shows that it is some kind of ritual vessel, and most probably it was used for collecting the blood of the bull, before slaughtering the bull. Blood was considered as the only food and source of nourishment for the spirits of the dead persons. Most probably the blood was collected in this kind of vessel and offered to the spirits by way of pouring blood into holes made on graves (or) stem of the vessel itself acted like a tube and the blood was directed towards the inner cavities of the tomb. After the blood is drained out the animal could have been slaughtered and the meat would have been consumed by the people. All the depictions in the seal have two parallels, one heavenly event and another earthly event. So far we discussed about the earthly nature of the vessel symbol. Now it is the time to think about the heavenly meaning of this vessel symbol. Careful observation of sky map shows that the ritual vessel coincides with that of Orion constellation. The orientation direction of Orion is different from the orientation in the “hunter on tree” symbolism, which is being narrated in the following pages.

Mother goddess of Indus valley

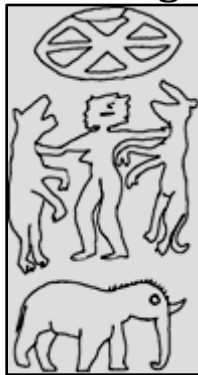


Figure
17, Inanna fighting
animals

Hemtun mentions about naked goddess and her role with rain. This Indus seal illustrated here shows a similar goddess who is naked and standing on elephant, crowned by a wheel. Heliacal rising of Auriga constellation might have indicated the beginning of rainy season in those days. Because of that reason Inanna (mother goddess) is always associated with rain. (See the discussion on Inanna under the chapter interpretation of Sumerian symbols). Hemtun says that wheels with six pokes means moon calendar. The six segments represent six seasons of two months each. (Or) There is possibility of another explanation also. The wheel represents sun and she is protecting the sun from two horrible animals, which are trying to eat him. The animals are most probably Raahu and Ketu, which are responsible for the Grahana. As per Hindu mythology Grahana happens because these two monsters try to eat the sun. (Or) There could be a third explanation also for the wheel; it might have represented the North Pole star, helping out the sailors in determining the north direction. Out of this discussion one concept is clear; the rain goddess Inanna of Indus people has been replaced by rain god Indra of later day Indo

European people. There are two things in common between Inanna and Indra; one is the vahan (vehicle) of these gods (elephant) and the other one is their identification mark (wheel).



Figure 18: The Goat seal

Aswins and goat seal

The word aswins appears in Veda frequently, and aswins means horse. However horse symbol does not appear anywhere in the Indus symbols. Hence it has become major rallying point of Dravidian theory supporters of origin of Indus sites. Careful analysis of the symbols used for Aswin star constellation shows that the

Kalan group of priests used the symbol of top of foot. Whereas, the next group used the symbol of honey bee and honey comb. Aswins are generally considered as medicine men, short in stature and accompanied gods as their companions and generally shown as small dwarf servants in the foot portion of gods. The third group used the symbol of goat (Aries) for this constellation. In fact goat is the most popular symbol for this star constellation. Only the fourth and the last group used the symbol of horse for this constellation. The above shown important seal named as “goat seal” shows the importance given to goat. The face of goat is like a human being and he is venerated as god. Most probably Agni is Indian version of God Aries. (Goat is the vahan/ vehicle of God Agni). (Or) Daksha could be the other candidate to take this place, because he had a goat’s head. In fact goat is not sacrificed in the ritual shown in the seal; only a human is being sacrificed, that shows the importance given to goat as a star constellation. The seven dancers portrayed here in this seal symbolize the Pleiades star constellation.

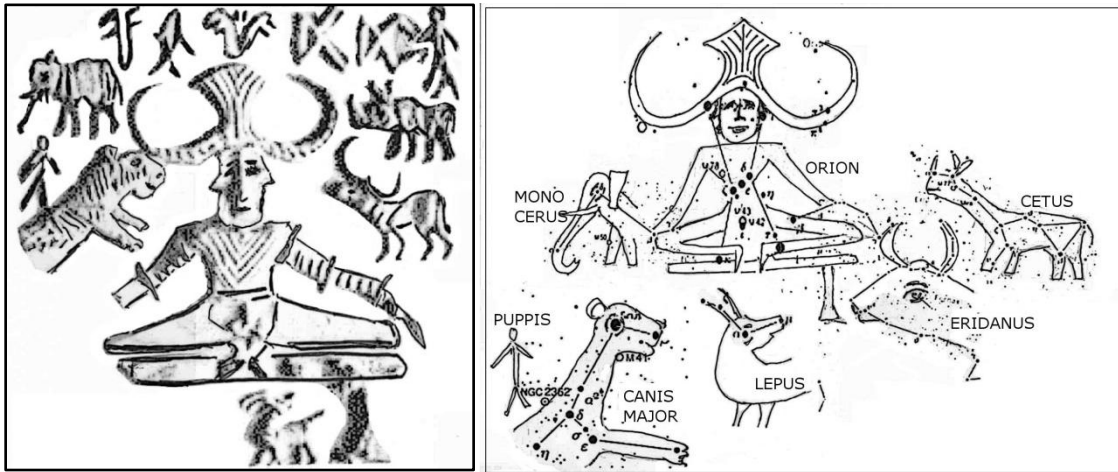


Figure 19, Yogi Seal. Figure 20, Orion and surrounding constellations.

Yogi seal

The god shown in the seal is “Proto-Shiva”. He wears the buffalo horns as his head gear, which is the characteristic emblem of Yama. He is also known as Mrigashira (Pasupathi) (Orion) and the lunar constellation is named after him. If you take a close look of that constellation in the sky map, the position of the tiger is tallying exactly the way it is represented in the seal. Other animals depicted in the seal had to be visualized with little bit difficulty, but all the animals are surrounding him, as depicted in the seal. Even minute points of the constellations are also depicted naturally in the seal. For example, there is a sign of man standing near the back of tiger, in fact there is a small constellation called puppies (modern name) (i.e. Little dog) only portion of which comes near to the back of the tiger is to be taken. It gives an appearance of little man standing over the back of the tiger as depicted in the seal. This little man symbol brings to my mind the idea of “Lord Ayyappan”. Note that the Yogi sitting position of “proto Shiva” is similar to the sitting posture of Ayyappan. Then refer to the childhood story of Ayyappan that he was sent into the forest by the step mother and came out of the forest riding a tiger. This story exactly tallies with the scene depicted in the seal. This story is evidence to the re-emergence theory of Indus ideas. It is a fantastic achievement that the constellations are so beautifully depicted, it cannot be done by ordinary minds. Definitely, it is the work of intelligent people.

Proto-Shiva had been depicted with four faces, because he could see everything going on this world because of his top most position in the sky. He was god of moral value and punisher of immoral people, because he could watch all actions of people day and night on earth because of his position in high observation point in heaven and all seeing four/three heads. He can be identified

with later day Shamash (Sumeria) and Brahma (of India). However Brahma is not popular in present day India, because he is really old time god and has been replaced by many other new upcoming gods. It is one important phenomenon to be remembered that in Hindu mythology one god is replaced by another god (because of conquest by new invader or ruler) and the new god is given all attributes of the old god, whom he replaced, these attributes are in addition to his already existing power attributes. Because of this replacement phenomenon Kalan and Brahma had been relegated to the back stage and Yama has taken over those powers, which he lost to Shiva in the subsequent period. Shiva reigns supreme as on today.

Linga worship

Linga worship is popular in Shiva temples of today. Scholars are divided in their opinion about Linga worship at Indus culture. Practically there is not much physical evidence and no phallic stone had been recovered. But it is a common practice in megalithic culture that, a phallic stone is placed over grave of a male person and a ring stone is placed over the grave of a female person to identify the sex of the venerated ancestor. Hence it can safely be assumed that such a practice was there in Indus culture also. In addition to that note importance given to male organ in the “proto-Shiva” seal, the Orion’s belt is one of the easily identifiable three stars in Orion constellations. The three stars of Orion belt correspond with the groin of Proto Shiva. It looks like that Linga was venerated as a heavenly symbol as a mark of identification of Orion constellation, which was important in determining the beginning of a new year along with Dog star (Sirius) constellation. There are always two parallels in mythological stories first the heavenly one and the second earthly one. The male organ of proto Shiva is heavenly representation and linga is the earthly representation in temples. (Or) The linga may be indicating the most important star of the sky the Aldebaran. Consider the bull (Nandi) in knelt down position before linga in Shiva temples. This is the same scene in heaven, wherein the bull constellation (Taurus) is located just front of the star Aldebaran.

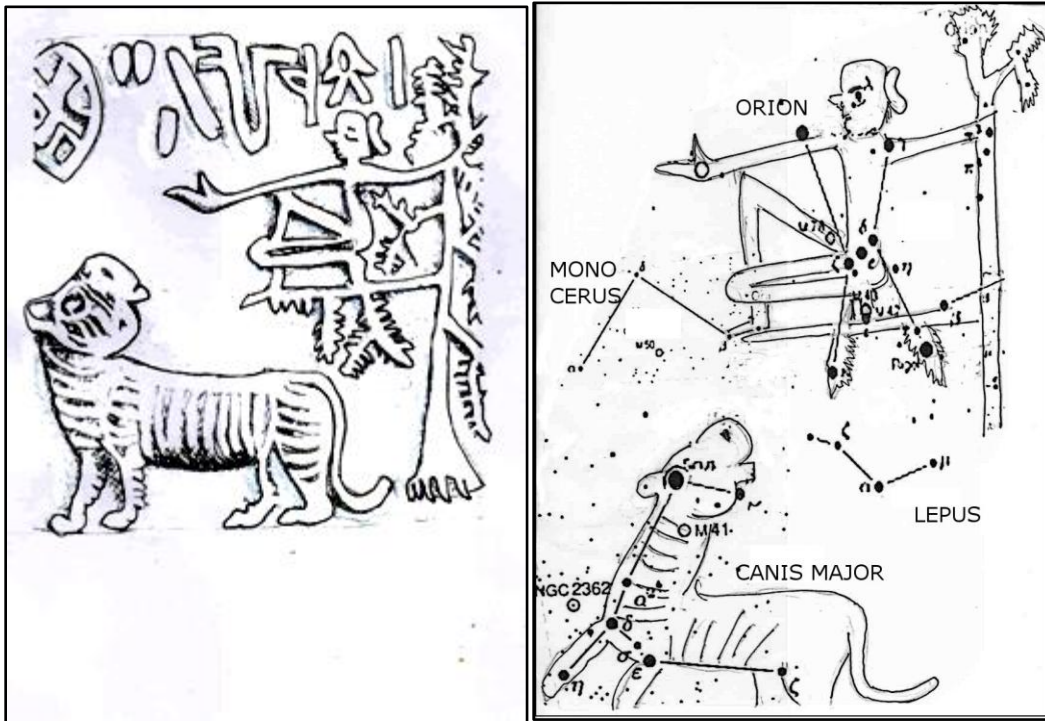


Figure 21, Hunter on tree. (Indus seal depiction)

Figure 22, Orion and Canis Major constellations.

Hunter on the tree- tiger below

This seal is the different version of the yogi seal described above. The change is that the yogi has become tree. Now the same constellations combine is depicted as tree, man and tiger. Tiger is the common link here. The myth of tiger and hunter on Shiv-rathri day should be recollected here. Story of Shiv-rathri is important in Hindu point of view. Many of them follow the rituals on this important day. The story goes in the following way. A hunter goes on a hunting trip into a forest and is chased by a tiger, to escape from the animal hunter climbs a tree and waits for the animal to go away. But the tiger decides other wise and stays put on the same place; down below the tree. With no other option in his hands, the hunter decides to stay on the tree over night. To keep himself awake, the hunter plucks leaves of the tree and throws down on the tiger wishing that it will go away. The whole night passes in this way, and in the early morning light hunter notices that the tiger has disappeared but there was a Shiv-lingam on that place instead of the tiger. The hunter feels that Shiva himself had come in the form of tiger to show the importance of Shiv-lingam of that place as well as the importance of the tree; Vilvam tree (Aegle marmelos tree (or) wood apple tree).

As described in other myths, there are two events in the story, one heavenly event and other earthly event. The earthly event has already been described. The heavenly event is that it is the heliacal raising of the Canis Major, which indicated the beginning of the New Year. Devote Hindus spend the whole night fasting and praying to Shiva. In ancient Egypt, a priest was assigned with special task of watching every night to spot the arising of dog-star. Even now Hindus are following the very same old custom, and carry out the special duty assigned to the priest without understanding the meaning behind the ritual.

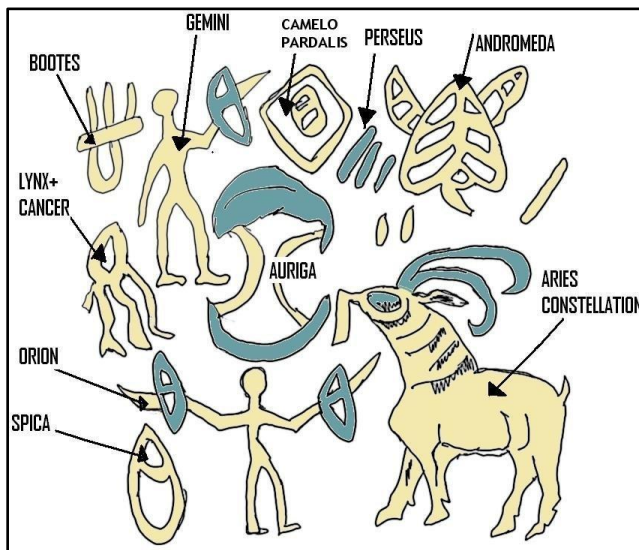


Figure 23: Sign of double axe

(Adapted after the seal picture shown in web site of Steve Farmer)














Sign of double axe




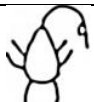






This seal is a kind of sky map and shows the position of various star constellations. Steve Farmer has critically analysed this seal and concludes that various symbols shown in this seal does not really depict any kind of script but only some kind of pictograms. His logical analysis is correct because most likely these symbols are describing the position of various star constellations and indicates a specific period of time in a calendar year. Benght Hemtun describes that the double axe symbol indicates two crescent moons, the upper one depicting growing season and lower one depicting time for visiting under world (some kind of religious ceremony of ancient Sumeria) associated with sowing season. The double axe symbol shown in this seal looks more like a stylised tree symbol. Heavenly tree is the symbol of Inanna. It is most likely that the double axe indicates the month of Inanna (mother Goddess) and the festival of Inanna which might have fallen on the full moon day in Auriga constellation. This also might have been the beginning of rainy season and sowing season of Sumerians as well as Indus people.







The seal of double axe shows the arrival of new group of people in Indus valley. This sky map shows new constellations of northern hemisphere like Andromeda, Camelopardalis, Bootes and others. In this picture the arrow of warrior is indicating the direction and location of pole star also. This importance given to pole star shows that the people who made this seal are from sea faring people and are definitely a class of their own in any society. Otherwise the people who used this seal might have arrived from Central Asia, because for them also the steppe lands are like a sea of grass or desert without any kind of identification for navigation. The problems are the same in sea as well as desert, no drinking water and no direction. Hence both these groups give lot of importance to pole star. The presence of this seal among Indus artefacts further substantiates the theory that the Indus sites were burial sites and were used by different kind of people over a long period of time.

Indus symbols interpreted




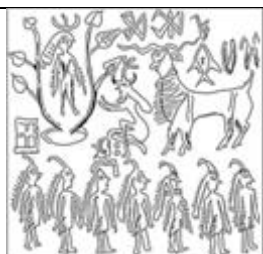





S.No	Symbol	Ref.No. in book of Parpola	Symbol portrays	Meaning	Star constellations
1		1(l)/H-416	Water carrier (Or) man carrying offerings to Rudra/ / (Known as "Kavadi" in Tamil)	Month or day of Kumbha/ /Kavadi is carried in honour of God Murugan	Aquarius/ Kumbha/ /Pleiades constellation
2		4(c)/H-38	Allelograph of Aquarius	Month or day of Aquarius	
3		6(a)/M-142	Stomach of kala	Month or day of Vrischika	Scorpio constellation
			(Or) Fingers of Kalan	Located near stomach region in the sky map	Hasta Nakshatra Virgo constellation
4		8(b)/M-1418	Ghost	--	
5		9(f)/M-762	Spear man/ Chest of Kalan Kalan with clubs ----- Eagle man of Murgab culture	Month of Swati Eagle man, later day Vishnu	Swati/ Libra
6		11(a)/M-35	Nose of Kalan/ ----- Bird man of Murgab culture	Month/day of Punarvasu	Castor and Pollux constellation








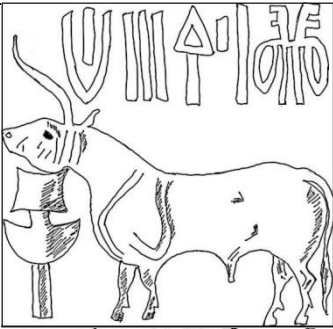

7		38(a)/M-13	Archers bow (Or) archer is God Rudra	Punarvasu month	Castor and Pollux constellation
8		14(a)/M-123	Back of Kalan/ Man with tail/	Man with donkey tail is the head man in the hunter society of Sumeria.	Purva Ashadha/ Apah
9		10(b)/3547/	Neck of Kalan	Month of Chitra/ Star of Chitra/	Star Spica in Virgo constellation
10		16(a)/M-798	Twins/ Seems to be Greek period symbol	Gemini/ Arda/ Mithuna/	Castor and Pollux
11		96(c)/L-85	Tuber/ onion	Fresh succulent plants	Arda Nakshatra/ Castor and Pollux /as well as/ Alpha Orionis of Orion constellation
12		19(d)/ M-702	Left thigh of Kalan		Purva Bhadrapad/ Aquarius
13		22(a)/H-212	Wheeled vehicle	As per jyotisha ox cart or wheeled vehicle is the symbol of Rohini	Rohini/ Taurus/ Star Aldebaran
14		23(a)/M-403	Left hand of Kalan/ (Or) man holding a sword	Month of Phalguni	Purva Phalguni/ Leo
15		25(b)/M-76	Forked	Man bearing fork	Vishaka/ Libra
16		40/M-161	Man with crab symbol (Or) lyre / Music instrument/	Karka in Sanskrit	Karka (earlier name) ----- Pushya (flower) (later name) Cancer
17		88(e)/M-22	Crab	Karka	Pushya Cancer
18		91(a)/L-45	Flower bud		Pushya Nakshatra
19		41(c)/H-247	Priest holding soma drink mug/ soma offering to god	Perseus constellation is the priest and soma mug is the Triangulum	Perseus constellation and Triangulum constellation

				constellation	
			Note that Left hand is marked by knots, which indicates the stars of this constellation.	Most probably the offering is made to Andromeda which is the brightest star located in front of priest	Most probably “Indra” (prime star) of this time was Andromeda.
20		46(e)/0229	Goat	Goat	Rishabha / (Vrishabha)/ Aries
21		47(d)/L-223	Dog	Dog/ Puppy/	Canis Major/ Canis Minor
22		53(b)/H-811	Squirrel	Mahadevan says this symbol depicts squirrel	Not known/ this may be variation of Scorpio constellation.
23		79(a)/L-88	Scorpion	Month or day of Vishaka-Anuradha	Scorpio constellation
24		76(g)/1237	Crow		Corvus constellation
			(Or) it may be Peacock		Pleiades constellation
25		81(a)/H-600	Peacock		Kritika/ Pleiades constellation
26		83(a)/ M-626	Bundle of roots		Mula Nakshatra
27		87(a)/3404	Mummified body/ day of mummification	Band or bandage	No constellation
					(Or) Punarvasu/ Castor and Pollux
28		90(f)/M-82	Honey bee	Honey is the symbol of aswins, who were physicians of gods	Asvini Nakshatra
					Aries constellation
29		91(k)/M-17	Fork/ forked/ It is the Trishul (Trident) of the Kalan.	Man holding a fork/two branched represents the two arms of Libra constellation	Vishaka Nakshatra
					Libra constellation

30			Bangles	Sign of Inanna/ or mother goddess	Auriga constellation
31		105(f)/ M-152	10 fingers of kala/ and / kala is holding a Trishul in his right hand.		Hasta Nakshatra /Virgo constellation
32		118(b)/ C-29	Peepal leaf	Indicates the tree of life/ Inanna is the goddess of this constellation	Auriga (Or) Andromeda constellation
33		124(a)/ H-598	Crab within tree of life/ Hybrid symbol	Day of Pushya (Karka) in the month of Inanna	Cancer symbol within Auriga constellation
34			Bandage cloth		It indicates that the dead body has been mummified.
35			Sign of root		Moola Nakshatra

Indus Inscriptions on seals interpreted

S.No	Symbol	Meaning
1	 Reference: fig5.4, Page.82 of Asko parpola's book	This symbol reads like this: Kalan () is holding the symbol of his anus () meaning there by Dhanistha Nakshatra/ day of Dhanistha/ 23 rd day of moon month. (Delphini constellation) The tiger indicates the Auriga constellation and the feeding trough indicates the Orion constellation. It means that a person had died in the month of Auriga / Orion, and on the 23 rd day of moon month. The annual death ceremony will be held in next year on the same month and Nakshatra. (Month and day)
2		This goat seal shows human sacrifice. The head is placed before the god on a stool. The inscription reads like this: (from left to right) On the Day of Karthigai () (or) ---- Grahana day---- () next symbol is damaged not visible (month symbol damaged) - month of () ---- Sacrificed ( -vessel) ---one human being () in honour of tree dwelling god. And goat (Aries) was witness to that sacrifice

3		<p>The script in this seal reads like this (from left to right): mummified (bandage cloth--) on Moola month (root—) month – (fish--)—on Aquarius day (symbol for water---) ---- (symbol for day--)</p>
4		<p>This is the Asherah pole. The tree with peepal leaves identifies with mother goddess. The sign reads like this (from right to left): (First symbol)--- The calendar symbol with six season chakra---- (second symbol) –cancer month--- (third symbol) fish symbol reads as “month”--- (fourth symbol) arrow reads as “day of”—(fifth symbol) quiver reads as “day of quiver” (day of Gemini)</p>
5		<p>The inscription on this seal reads like this (from left to right): Sacrifice done (sacrifice of the bull shown in the seal) --- on Perseus day (or) Aquila day –month of –Aquarius</p>
6		<p>The inscription reads like this (from right to left): Kalan---grabbed by Raahu and Ketu (probably the crab symbols indicate the Grahana day here) ----Aslesha month (twin snakes joined to form “U” shape) (quotation mark between snakes indicates that it means a month) ----- Fish symbol here means “fish day” (27th day in the moon calendar) -----“U” symbol as usual means “the day”</p>

CHAPTER- XIII

VEDIC PERIOD

Vedic Period (or Vedic Age) is the period in which the Vedas, the oldest sacred texts of the Indo-Europeans, were being composed. Scholars place the Vedic period in the circa 2000 BC continuing up to 600 BC based on literary evidence. The associated culture, sometimes referred to as Vedic civilization, was centred in the northern and north-western parts of the Indian. Its early phase saw the formation of various kingdoms of ancient. In its late phase (from Ca. 600 BC), it saw the rise of the Mahajanapadas, and was succeeded by the Mauryan Empire (from Ca. 320 BC), the golden age, classical age of Sanskrit, and the Middle kingdoms of India.

Overview

The reconstruction of the history of Vedic India is based on the details available in the Vedic texts. Linguistically, the Vedic texts could be classified in five chronological strata:

1. Rigveda: The Rig-Veda is by far the most archaic of the Vedic texts preserved, and it retains many common Indo-Iranian elements, both in language and in content, that are not present in any other Vedic texts. Its creation must have taken place over several centuries, and apart from that of the youngest books (first part of 1 and all of 10), would have been complete by 1000 BC. Archaeologically, this period may correspond with the Gandhara Grave Culture, the Cemetery H culture of the Punjab and the Ochre Coloured Pottery culture (OCP) further east. There is no widely accepted archaeological or linguistic evidence of direct cultural continuity from the Indus.

2. Mantra language: (The remaining three Vedas). This period includes both the mantra and prose language of the Atharvaveda, the Samaveda Samhita (containing some 75 mantras not in the Rig-Veda), and the mantras of the Yajurveda. This is the time of the early Iron Age in north-western India, corresponding to the Black and Red Ware (BRW) culture, and the kingdom of the Kurus, dating from Ca. 1000 BC.

3. Samhita prose: This period marks the beginning of the collection and codification of a Vedic canon. An important linguistic change is the complete loss of the injunctive. The Brahmana part ('commentary' on mantras and ritual) of the Black Yajurveda belongs to this period. Archaeologically, the Painted Grey Ware (PGW) culture from ca. 900 BCE corresponds, and the shift of the political centre from the Kurus to the Panchalas on the Ganges.

6. Epic and Paninian Sanskrit: The language of the Mahabharata and Ramayana epics, and the Classical Sanskrit described by Panini is considered post-Vedic, and belongs to the time after 500 BCE. Archaeologically, the rapid spread of Northern Black Polished Ware (NBP) over all of northern India corresponds to this period. The earliest Vedanta, Gautama Buddha, and the Pali Prakrit dialect of Buddhist scripture belong to this period. (wikipedia).

Historical records set in only after the end of the Vedic period, and remain scarce throughout the Indian Middle Ages. The end of Vedic India is marked by linguistic, cultural and political changes. The grammar of Panini marks a final apex in the codification of Sutra texts, and at the same time the beginning of Classical Sanskrit. The invasion of Darius of the Indus valley in the early 6th century BCE marks the beginning of outside influence, continued in the kingdoms of the Indo Greeks, new waves of immigration from 150 BCE (Abhira, Shaka), Kushan and ultimately the Islamic Sultans. The most important historical source of the geography of post-Vedic India is the 2nd century Greek historian Arrian whose report is based on the Mauryan time ambassador to Patna, Megasthenes. (wikipedia)

General period	Duration	Specific events
Vedic period	2000BC to 600 BC	
	600 BC	Birth of Buddha
Gandhara grave culture	1000 BC	Ochre coloured pottery (OCP) Black and red ware culture (BRW) Beginning of Kuru kingdom
Iron Age in Punjab	1000 BC	

	900 BC	Painted Grey ware culture (PGW) Emphasis shift to Gangetic plain
Mahajana Padas	600 to 300 BC	
	600 BC	Birth of Buddha/ Invasion of India by Darius-I of Iran
	500 BC	Northern black polished ware. Corresponds to Mahabharata and Paninian classical Sanskrit
	323 BC	Alexander invasion of India
Mauryan period	320 to 150	
	150 BC	Shaka entry into India

Table 9: Vedic chronology

Rigvedic period

The origin of the Vedic civilization and its relation to the Indus, Indo-Aryan and Gandhara Grave culture related cultures remains controversial and politically charged in Indian society, often leading to disputes on the history of Vedic culture. The Rigveda is primarily a collection of religious hymns, and allusions to, but not explanation of, various myths and stories, mainly in the younger books 1 and 10. The oldest hymns, probably in books 2–7, although some hold book 9, the Soma Mandala, to be even more ancient, contain many elements inherited from pre-Vedic, common Indo-Iranian society. Therefore, it is difficult to define the precise beginning of the "Rigvedic period", as it emerges seamlessly from the era preceding it. Also, due to the semi-nomadic nature of the society described, it cannot be easily localized, and in its earliest phase describes tribes that were essentially on the move. Rig Vedic Aryans have a lot in common with the Andronovo culture and the Mittanni kingdoms as well as with early Iranians. The Andronovo culture is believed to be the site of the first horse-drawn chariots. (wikipedia)

Political organization

The grama (wagon train), Vis and Jana were political units of the early Vedic Aryans. A vish was a subdivision of a Jana or "krishti", and a grama was a smaller unit than the other two. The leader of a grama was called gramani and that

of a vish was called vishpati. The rashtra (polity) was governed by a rajan (chieftain, 'king'). The king is often referred to as gopa (protector) and occasionally as samrat (supreme ruler). He governed the people with their consent and approval. He was elected from a restricted class of 'royals' (rajanya). There were various types of meetings such as the vidhata or "Sabha". Gana was the non-monarchical assembly that is a parallel one to the monarchical assemblies of that period headed by Jyestha the same was referred in Buddhist text named Jettaka.

The main duty of the king was to protect the tribe. He was aided by several functionaries, including the purohita (chaplain) and the senani (army chief; sena: army). The former not only gave advice to the ruler but also was his chariot driver and practiced spells and charms for success in war. Soldiers on foot (Pattis) and on chariots (rathins), armed with bow and arrow were common. The king employed spaś (spies) and dutas (messengers). He collected taxes (originally ceremonial gifts, Bali), from the people which he had to redistribute.

The concept of Varna (class) and the rules of marriage were rigid as is evident from Vedic verses (RV 10.90). The status of the Brahmins and Kshatriyas was higher than that of the Vaishyas and Shudras. The Brahmins were specialized in creating poetry, preserving the sacred texts, and carrying out various types of rituals. Functioning as intellectual leadership, they also restricted social mobility between the varnas, as in the fields of science, war, literature, religion and the environment. The proper enunciation of verses in ritual was considered essential for prosperity and success in war and harvests. Kshatriyas amassed wealth (cattle), and many commissioned the performance of sacrifices. Kshatriyas helped in administering the polity, maintained the structure of society and the economy of a tribe, and helped in maintaining law and order. In the Early Vedic Period all the three upper classes Brahmins, Kshatriyas, and Vaishyas were considered as --relatively-- equal Arya, but in the Later Vedic Age the Brahmins and Kshatriyas became upper class. The Vaishyas were pastoralists and farmers; the Shudras were the lower class; they included artisans and were meant to serve the upper three classes. As the caste system became deep-rooted there were many restrictions and rules which were to be followed. Cattle were held in high esteem and frequently appear in Rigvedic hymns; goddesses were often compared to cows, and gods to bulls. Agriculture grew more prominent with time as the community gradually began to settle down in post-Rigvedic times. The economy was based on bartering with cattle and other valuables such as salt or metals. Families were patrilineal, and people prayed for the abundance of sons. The Society was strictly organized in a system of four Varna (classes, to be distinguished from caste, jati) (wikipedia)

Vedic Religious Practices

The Vedic forms of belief are the precursor to modern Hinduism. Texts considered to date to the Vedic period are mainly the four Vedas. The Brahmanas, Aranyakas and the Upanishads belong to later Vedic period. The mode of worship was performance of sacrifices which included the chanting of Rigvedic verses singing of Samans and 'mumbling' of offering mantras (Yajus). The priests executed rituals for the three upper classes (Varna) of Vedic society, strictly excluding the Shudras. People conducted sacrifice ceremonies praying for abundance of rain, cattle, sons, long life and gaining 'heaven'.

The main deities of the Vedic pantheon were Indra, Agni (the sacrificial fire), and Soma and some deities of social order such as Mitra-Varuna, Aryaman, Bhaga and Amsa, further nature deities such as Surya (the Sun), Vayu (the wind), Prithivi (the earth). Goddesses included Ushas (the dawn), Prithvi and Aditi (the mother of the Aditya gods or sometimes the cow). Rivers, especially Saraswati, were also considered goddesses. Deities were not viewed as all-powerful. The relationship between humans and the deity was one of transaction, with Agni (the sacrificial fire) taking the role of messenger between the two. Strong traces of a common Indo-Iranian religion remain visible, especially in the Soma cult and the fire worship, both of which are preserved in Zoroastrianism. The Ashvamedha (horse) has parallels in the 2nd millennium BC Andronovo culture, in Rome and old Ireland, was continued in India until at least the 4th century AD.

Vedic religion evolved into the Hindu paths of Yoga and Vedanta, a religious path considering itself the 'essence' of the Vedas, interpreting the Vedic pantheon as a unitary view of the universe with 'God' (Brahman) seen as immanent and transcendent in the forms of Ishvara and Brahman. These post-Vedic systems of thought, along with later texts like Upanishads, epics (namely Gita of Mahabharat), have been fully preserved and form the basis of modern Hinduism. The ritualistic traditions of Vedic religion are preserved in the conservative Srauta tradition, in part with the exception of animal sacrifice, which was mostly abandoned by the higher castes by the end of the Vedic period, partly under the influence of the Buddhist and Jain religions, and their criticism of such practices.

(wikipedia)

Different view

It is generally said that Vedic Indo-Europeans were nature worshippers and sky god Dyaus/Zeus was the earliest god and later replaced by Indra. It looks like that the sky god Varuna, Zeus all encompassing the atmosphere were worshipped

for astrological purpose (calendar purpose) not because of their potency in influencing weather. The Kala Purusha as depicted in jyotisha vedanga is all encompassing and covering over mother earth. His various body parts are various constellations. There are so many different kinds of gods in Vedic religion because it all describes various astronomical events and constellation, not weather element as being interpreted. This gives rise to confusing number of gods, and gods with over lapping roles. (Siddharth & Hemtun)

The later Vedic period

The transition from the early to the later Vedic period was marked by the emergence of agriculture as the dominant economic activity and a corresponding decline in the significance of cattle rearing. Several changes went hand in hand with this. For instance, several large kingdoms arose because of the increasing importance of land and long distance trade. The late Vedic period, from ca. 500 BCE onward, more or less seamlessly blends into the period of the Middle kingdoms of India known from historical sources.

Kingdoms

The late Vedic period was marked by the rise of the sixteen Mahajanapadas referred to in some of the literature. The power of the king and the Kshatriyas greatly increased. Rulers gave themselves titles like ekarat (the one ruler), sarvabhauma (ruler of all the earth) and chakravartin ('who moves the wheel'). The kings performed sacrifices like rajasuya, (royal consecration) vajapeya (including a chariot race) and, for supreme dominance over other kings, the ashvamedha (horse sacrifice). The coronation ceremony was a major social occasion. Several functionaries, in addition to the purohita and the senani, took part. The role of the people in political decision making and the status of the Vaishyas as such were greatly decreased.

Rigveda

The Rigveda is a compound word consisting of "rik" (praise, verse) and "Veda "(knowledge). It is an ancient Indian sacred collection of Vedic Sanskrit hymns dedicated to the gods (devas). It is counted among the four canonical sacred texts (sruti) of Hinduism known as the Vedas. Some of its verses are still recited as Hindu prayers, at religious functions and other occasions, putting these among the world's oldest religious texts in continued use. It is one of the oldest extant texts of

any Indo-European language. Philological and linguistic evidence indicate that the Rigveda was composed in the North-Western region of the Indian subcontinent, roughly between 1700–1100 BC (the early Vedic period). There are strong linguistic and cultural similarities with the early Iranian Avesta, deriving from the Proto-Indo-Iranian times, often associated with the early Andronovo culture of ca. 2200-1600 BC.

Dating and historical context

The Rigveda is far more archaic than any other Indo-Aryan text. For this reason, it was in the centre of attention of western scholarship from the times of Max Muller onwards. The Rigveda records an early stage of Vedic. There are strong linguistic and cultural similarities with the early Iranian Avesta, deriving from the Proto-Indo-Iranian times, often associated with the early Andronovo culture of ca. 2000 BC. The Rigveda's core is accepted to date to the late Bronze Age, making it one of the few examples with an unbroken tradition. Its composition is usually dated to roughly between 1700–1100 BC. It is certain that the hymns post-date Indo-Iranian separation of ca. 2000 BC and probably that of the Indo-Aryan Mitanni documents of c. 1400 BC. Several other evidences also pointed out 1400 BC as the most reasonable date. But many historians are questioning this date probably it may be much earlier than this mentioned date.

Writing appears in India around the 3rd century BC in the form of the Brahmi script, but texts of the length of the Rigveda were likely not written down until much later, the oldest surviving manuscript dating to the 11th century, while some Rigveda commentaries may date from the second half of the first millennium AD. While written manuscripts were used for teaching in medieval times, they were written on birch bark or palm leaves, which decompose fairly quickly in the tropical climate, until the advent of the printing press from the 16th century. The hymns were thus preserved by oral tradition for 3500 years from the time of their composition until it was written down by Max Muller.

The Rigveda describes a mobile, semi-nomadic culture, with horse-drawn chariots, oxen-drawn wagons, and metal (bronze) weapons. The geography described is consistent with that of the Greater Punjab: Rivers flow north to south, the mountains are relatively remote but still visible and reachable (Soma is a plant found in the high mountains, and it has to be purchased from tribal people). Nevertheless, the hymns were certainly composed over a long period, with the oldest (not preserved) elements possibly reaching back to times close to the split of Proto-Indo-Iranian (around 2000 BC) Thus there was some debate over whether

the boasts of the destruction of stone forts by the Vedic Aryans and particularly by Indra refer to cities of the Indus or whether they rather hark back to clashes between the early Indo-Aryans with the BMAC in what is now northern Afghanistan and southern Turkmenistan (separated from the upper Indus by the Hindu mountain range, and some 400 km distant).

While it is highly likely that the bulk of the Rigvedic hymns were composed in the Punjab, even if based on earlier poetic traditions, there is no mention of either tigers or rice in the Rigveda (as opposed to the later Vedas), suggesting that Vedic culture only penetrated into the plains of India after its completion. Similarly, there is no mention of iron as the term *ayas* occurring in the Rig Veda refers to useful metal in general. The "black metal" (*kṛṣṇa ayas*) is first mentioned in the post-Rigvedic texts (Atharvaveda etc.). The Iron Age in northern India begins in the 10th century in the Greater Panjab and at the 12th century BC with the Black and Red Ware (BRW) culture. There is a widely accepted timeframe for the beginning codification of the Rigveda by compiling the hymns very late in the Rigvedic or rather in the early post-Rigvedic period, including the arrangement of the individual hymns in ten books, coeval with and the composition of the younger Veda Samhitas. This time coincides with the early Kuru kingdom, shifting the centre of Vedic culture east from the Punjab into what is now Uttar Pradesh.

Some of the names of gods and goddesses found in the Rigveda are found amongst other belief systems based on Proto-Indo-European, while words used share common roots with words from other Indo-European languages. The horse (*ashva*), cattle, sheep and goat play an important role in the Rigveda. There are also references to the elephant (*Hastin*, *Varana*), camel (*Ustra*, especially in Mandala 8), ass (*khara*, *Rishabha*), buffalo (*Mahisa*), wolf, hyena, lion (*Simha*), mountain goat (*sarabha*) and to the gaur in the Rigveda.[32] The peafowl (*mayura*), the goose (*hamsa*) and the *chakravaka* (*Anas casarca*) are some birds mentioned in the Rigveda. ^(wikipedia)

Hindu tradition

According to Hindu tradition, the Rigvedic hymns were collected by Paila under the guidance of Vyasa, who formed the Rigveda Samhita as we know it. According to the Shatapatha Brahmana, the number of syllables in the Rigveda is 432,000, equalling the number of *muhurtas* (1 day = 30 *muhurtas*) in forty years. This statement stresses the underlying philosophy of the Vedic books that there is a connection (*bandhu*) between the astronomical, the physiological, and the spiritual. The authors of the Brahmana literature discussed and interpreted the Vedic ritual. Yaska was an early commentator of the Rigveda by discussing the meanings of

difficult words. In the 14th century, Sayana wrote an exhaustive commentary on it. Other Bhashyas (commentaries) that have been preserved up to present times are those by Madhava, Skandasvamin and Venkatamadhava.

So far no proof has been available to show that ancient Vedic religion had possessed any scientific knowledge. Subhash Kak has come out with evidence that there is a code in the design of Vedic altars. The astronomical basis of the fire altar as well as the discovery of an altar code in the organisation of material of the Rig-Veda confirms the need for a new understanding of the origin of science and astronomy. In its overall plan, the Rig-Veda is an altar fashioned from hymns rather than bricks. Its internal organisation contains important cosmological information. (Georg Feuerstein, 2005, pp. 200,201)

Subhash Kak says that fire altars were meant to symbolise the universe at large. There were three different type of altars, which respectively represented earth, the atmosphere (or mid region) and the sky (or Heaven). The sky altars were constructed in five layers of bricks. The altars were built in a sequence corresponding to 95 years, with the size being increased every year by certain amount. The amount of increase represented the extra days needed to make the lunar year equal to solar year. At the completion of this sequence, after the necessary number of intercalary months had been added to the lunar year, the ancients obtained an excellent synchronisation of lunar and solar years.

An interaction cycle of 95 years hints at a knowledge of the length of the tropical year being equal to 365 days. Such knowledge could only be based on century long tradition of astute astronomical observation. When we turn to the Rig-Veda, we find from the total number of syllables that this text was itself taken to represent a symbolic altar. Thus the number of syllables in Rig-Veda is supposed to add up to number of “Muhurtas” (1 day = 30 Muhurtas) in forty years, it will be equal to 4,32,000 Muhurtas. The same numbers of syllables were allotted to the Yajur-Veda and Samaveda put together, thus yielding a total of 864,000 syllables for the three principal Vedas.

Similarly the number of books, hymns and groups also represent various calculation of number of days in over a 40 year period (40 years= one Yuga).

BOOKS	1	2	3	4	5	6	7	8	9	10	TOTAL
HYMNS	191	43	62	58	87	75	104	92	114	191	1017

The Rig-Veda consists of 1017 hymns distributed over 10 books (including 11 supplementary hymns the total number of hymns will be 1028). These divisions are based on authorship, subject or meter. (Georg Feuerstein, 2005, p. 204)

Different view on Rig-Veda

David Frawley takes a view that the Indus people themselves were authors of Rig Veda and other Vedas. There is some possibility that this statement is correct. Because all the indications so far reveals that Rigveda is some kind of astronomical guide, which was helpful in calendar making. Calendar making was the main profession of Anatolian priests, who were accompanying the Anatolian farmers in their expansion mode all around Anatolia. Hence it is to be construed that the Rig Veda was in existence in Indus culture itself and the language of Indus people was Indo-European in nature. But the Indus people were M-172 stock and not M-17 stock.

The myth of the Aryan invasion of India

One of the main ideas used to interpret and generally devalue the ancient history of India is the theory of the Aryan invasion. According to this account, India was invaded and conquered by nomadic light-skinned Indo-European tribes from Central Asia around 1500-1000 BC, who overthrew an earlier and more advanced dark-skinned Dravidian civilization from which they took most of what later became Hindu culture.

The war between the powers of light and darkness, a prevalent idea in ancient Vedic scriptures, was thus interpreted to refer to this war between light and dark skinned peoples. In the middle of the second millennium BC, a number of Indo-European invasions apparently occurred in the Middle East, wherein Indo-European peoples the Hittites, Mittani and Kassites conquered and ruled Mesopotamia for some centuries. An Aryan invasion of India would have been another version of this same movement of Indo-European peoples. On top of this, excavators of the Indus valley culture, like Wheeler, thought they found evidence of destruction of the culture by an outside invasion confirming this. (David Frawley)

The Vedic culture was thus said to be that of primitive nomads who came out of Central Asia with their horse-drawn chariots and iron weapons and overthrew the cities of the more advanced Indus valley culture, with their superior

¹ David Frawley is a well-known Vedic scholar, runs the American Institute of Vedic Studies in Santa Fe, New Mexico. He is also a famed Ayurveda doctor. Those interested in this subject may refer to his book "Gods, Sages and Kings: Vedic Secrets of Ancient Civilization".

battle tactics. It was pointed out that no horses, chariots or iron was discovered in Indus valley sites. This was how the Aryan invasion theory formed and has remained since then. However new excavations have been done and new evidences have been brought into record. These excavations reveal that remnants of horses have been found not only in Indus Valley sites but also in pre-Indus sites. The use of the horse has thus been proven for the whole range of ancient Indian history.

The 'Rig Veda' describes Indra as 'destroyers of cities'. This was used also to regard the Vedic as a primitive non-urban culture that destroyed cities and urban civilization. The latest opinion is that the Indus Valley culture was not destroyed by outside invasion, but according to internal causes and, most likely, floods. According to the theory proposed in this book it never declined at all. The Indus sites are discarded burial sites and merely give an impression that these sites were destroyed by some invaders. This new hypothesis eliminates the 'Dark Age Theory' which is in current consumption.

The interpretation of the religion of the Indus Valley culture made incidentally by scholars such as Wheeler who were not religious scholars much less students of Hinduism was that its religion was different than the Vedic and more likely the later Shaivite religion. However, further excavations both in Indus Valley site in Gujarat, like Lothal, and those in Rajasthan, like Kalibangan show large number of fire altars like those used in the Vedic religion, along with bones of oxen, potsherds, shell jewellery and other items used in the rituals described in the 'Vedic Brahmanas'. Hence the Indus Valley culture evidences many Vedic practices that cannot be merely coincidental. That some of its practices appeared non-Vedic to its excavators may also be attributed to their misunderstanding or lack of knowledge of Vedic and Hindu culture generally, wherein Vedism and Shaivism are the same basic tradition. (Frawley)

According to the theory, which is currently in use, the Vedic people were nomads in the Punjab, came down from Central Asia. However, the 'Rig Veda' itself has nearly 100 references to ocean (samudra), as well as dozens of references to ships, and to rivers flowing in to the sea. To preserve the Aryan invasion idea it was assumed that the Vedic (and later Sanskrit) term for ocean, samudra, originally did not mean the ocean but any large body of water, especially the Indus river in Punjab. Here the clear meaning of a term in 'Rig Veda' and later times verified by rivers like Saraswati mentioned by name as flowing into the sea was altered to make the Aryan invasion theory fit. (Frawley.)

In his opinion David Frawley states that there is nothing in the Hymns of the 'Rig Veda' which demonstrates that the Vedic-speaking population was intrusive to the area: this comes rather from a historical assumption of the 'coming of the Indo-Europeans. Wheeler speaks of 'the Aryan invasion of the land of the 7 rivers, the

Punjab', whereas David Frawley states that there is no evidence to conclude that there was an invasion. If one checks the dozen of references in the 'Rig Veda' to the 7 rivers, there is nothing in them to imply that there was an invasion in the land of the 7 rivers, which is the land of the 'Rig Veda'.

Aryan invasion theory is not good scholarship or archaeology but merely cultural imperialism. The Western Vedic scholars did in the intellectual sphere what the British army did in the political realm discredit, divide and conquer the Hindus. In short, the compelling reasons for the Aryan invasion theory were neither literary nor archaeological but political and religious that is to say, not scholarship but prejudice. Such prejudice may not have been intentional but deep-seated political and religious views easily cloud and blur our thinking.

David Frawley concludes that never there was any Aryan invasion in India, but takes a view that Indus valley culture itself is that of Indo-European people who migrated in to India much ahead of the presently accepted dates. In this book Indo European have been defined as the people those who have the genetic marker M-17, whereas the Indus people were Neolithic Anatolian farmers with genetic marker M-172. (See the Table-1: Human Migration details). That makes them they were Middle Eastern stock and not the central Asian stock.

Genetic evidences suggest that people with M-20 marker genes were the second group of people to enter India and they were living and multiplying in Turan basin 30,000 years ago, and this marker is found in high frequency in south India (i.e.50%). (Wells, 2003, p. 113) Hence it is reasonable to conclude that they were early pastoral Dravidians and they formed the basic strata of Indian populace of that time and were culturally interacting with Sumerian people as well as Turan people. Further the cultural interaction sphere as defined by Possehl clearly shows the similarities in seals and religious belief between Turan people, Sumerian people and Indus people. (L.Possehl, 2003, pp. 215-236).

From the facts narrated above it can be safely concluded that the language of the Indus priests was Sanskrit (as described in the chapter under Sanskrit) and the Rig Veda itself is the work of Indus priests and not the Indo-European people as imagined by various different authors. Wherein the Dravidian language was the language of common people and could have survived along with the Vedic language of the priests.

Sarama is the Dog Star -Sirius

Sarama is mentioned prominently in Rig Veda. There is a narration in Rig Veda about missing “cows” and “Sarama” the dog finds them in the custody of “Panis” after a long search. Then she (dog) converses with the Panis threatening

them that she is working for Indra and she will inform him about the incident of capture of cows by Panis. It was a warning to them to release the cows. The explanations given by Rajeshwar gupta, (Gupta, 1902), are illuminating on this issue. The word Sarama gives a new insight into Vedic period as well as Indus period.

In Rig-Veda Sarama is the messenger of Indra; she seeks out the lost cows and goes about in search of them to distant places. For her services, she is sumptuously rewarded with food for her as well as her son. She gets large quantity of milk from Indra and others. Max Muller thought that the early dawn (Ushas) were called as Sarama in the Vedas. It looks like that the view of Max Muller may not be correct, because various expressions used to describe Sarama fits a dog and not a goddess.

In this light, the most plausible explanation is that Sarama meant the dog, the heavenly dog “The Dog star-Sirius”. It fits well to the general narration in this book that many of the stories in Vedas are allegorical expression of heavenly events (Sidharth.B.G, 1999). The importance of Dog Star lies in the fact that the heliacal rising of the Dog Star heralded the onset of rising flood waters of Nile in Egypt, at the same time on set of rains in Indus valley also. This definition brings the conclusion that the word “Go” means rainy months and not the literal meaning “cows”. It is relevant here to note that not only the celestial dog was given ample food; her son was also given enough food by Indra and others. As discussed in earlier pages under the heading “the yogi seal”, there is small boy like constellation (Puppies) on the back of tiger (Canis Major). It is most likely that the reference to son of Sarama means the Puppies constellation. If this statement is correct, then logically speaking, the extension of this allegory will result in the conclusion that the Orion constellation (Hunter) is the Indra (Prime Star) in this context.

“Pani” defined

The word Pani is mentioned no less than 36 times in the Rig Veda. The word Pani forms as it were the backbone of the Rig Veda: it is the key that unfolds the meaning of the sacred book, Not only do the stories of Sarama and Pani, but also good many riks depend for their proper interpretation upon the correct meaning of the word Pani itself.

The expression “Revata Panina” shows that the Panis were rich. The expression “Paner maneeshan” shows that the Panis were wise. “Abasam Panim” would show that the Panis were given to introspection. Further Rig-Veda tells us that the Panis did not perform any Yajnas or sacrifices; were talkative, arrogant or haughty; had no respect for Yajnas and were Dasyus i.e., idlers or robbers. According to Sayana they were usurers also. The word Pani is used for traders. It is

therefore clear that the Panis were a trading people and sold things for their value. Rig-Veda also depicts the Panis as gluttons. For their voracious eating they were regarded as monsters. The word is also explained to mean illiterate traders. (Gupta, 1902)

They were indeed a nation of traders without sacrifices, selfish, illiterate and usurious. A nation of traders of those ancient days recalls the Phoenicians of old, for they were the only trading people then. In those days the Phoenicians were known as the Panis. The Indo Europeans spoke of them as the Panih and the Romans as the Punic. Gupta further stretches his theory and concludes that the origin of Phoenicians lie in Afghanistan. Thereby comes to the conclusion that panis of Afghanistan are the earliest people and further it is to be construed that the Vedic people are from central Asia, because both of them exist side by side. It looks like that Gupta is supporter of “India centric, Indo–European theory”

In the process of developing “Indo-centric theory”, Gupta narrates out various other information. He explains the possibility that Vedic people and panis could be from central Asia and Afghanistan and were living in nearby areas. This important information coincides with the fact that Anatolia and Phoenicia are nearby lands and both were centres of ancient civilisations. This view supports the theory proposed in this book that “Vedic People” are from Anatolia. B.G.Sidharth is also emphatic that the “Vedic people” are from Anatolian region. (Sidharth.B.G, 1999)

While dealing with any information or story in Vedas, it should be always remembered that many of them are allegorical expression and not mere facts. In this way of interpretation, this expression of “panis” also has two meanings, one “heavenly” meaning and the other “earthly” meaning. The earthly expression meant the traders of Phoenicia, while the heavenly expression meant the “Dark evil forces of heaven, the Ashuras, who block the rains”. The factual meaning of this word “panis” seems to be indicating the earlier dark coloured inhabitants of Indus valley area, who were descendents of the earlier immigrants, i.e. the people with genetic marker M-130 and M-20.

This theory is further supported by the observation of H.G.Wundderlich (page.no266), who states that the basis of Egyptian calendar is a cycle of Sirius that takes 1460 years. Sirius is the dog constellation and perfectly fits the role of Sarama and the narration mentioned in Rigveda. It is further supported by postulation of B.G.Siddharth that many of the narrations in Rig Veda are allegorical and pertains to earliest astronomy. (Sidharth.B.G, 1999)

Indra

Indra is an important deity of Vedic people and frequently invoked for rain and victory in war. He played dual role of rain maker as well as war god. In the old portion of Rig Veda, Indra is frequently invoked but later portions of Vedas, Indra's importance gradually declines and gradually the priestly god Agni is highly praised and frequently invoked. It is possible that the shift in importance reflected the change in field realities. By the time Vedic people got settled in Indo-Gangetic plain, agriculture was given more importance than pastoralism. The fact that more importance is being given to Agni shows the ascendancy of priestly class over warrior class.

Now, coming to more hard facts about Indra, it is surprising that Indra is frequently dethroned and replaced with somebody else and is really a weak character. Identity of Indra could not be properly fixed. It is very important to fix the identity of Indra to understand better the Vedic religion. Indra means "prime" or "principal" he was the principal or chief of Vedic gods, but still there is no proper temple for Indra in India, how perplexing and contradictory it is? This confusion arises because we have not properly understood him.

Indra was chief in the sense, he was principal star in indicating the forthcoming rainy season, or beginning of the year. This role was played by different stars at different time. In the beginning it was the bull constellation Taurus and principal star Aldebaran. Arising of Aldebaran in heliacal rising position indicated the New Year as well as forthcoming rains. This was the period of Indus people and they worshipped Aldebaran as Indra. Later Aldebaran got replaced with Canis Major (Dog Star) because of precessional movement of earth.

Later that was also replaced and star Chitra was made beginning of the New Year. The conclusion is that the position of Indra was unstable and was replaced periodically. The original developers of Rig Veda knows the real position of Indra and gave due respect as rain predictor, but later the power of war god added to it. Later heliacal arising of Aries constellation also marked the beginning of the year, because of this frequent replacement phenomenon; Indra did not have a lasting influence to remain as a supreme god.

It looks like that it is attested by an Indus seal which shows a goddess (most probably mother goddess and later day Kali of India) fighting tigers with a wheel over her head, the wheel symbolizes the prime constellation that is Indra of that time (Auriga constellation) and she is standing over an elephant, which means that her vahan was elephant. Later after arrival of Indo-European the elephant becomes vahan of Indra (A male god in place of female divinity). It is very

significant because elephant is the symbol of Indra for indo –Europeans, where as it was the vahan of a goddess for Indus people.

Horse

The issue of the horse has become the support base of Aryan invasion theorists. It has become a one-issue argument used to neutralize any other data. They see Vedic culture as a movement of horse-riding people into India from Central Asia. They point out the development of a horse culture at an earlier period in Central Asia and the lack of horse remains in ancient India. They equate the Aryans with the horse and Harappa with a non-horse culture, and hence non-Vedic culture. Such a simplistic equation has many flaws and ignores the many other issues. It overlooks that Vedic culture was essentially a Rishi-king culture, not a horse/nomad culture.

First, one should note that horses spread throughout the ancient world from Egypt and China. It was not accompanied by a radical change of culture, language or population for an entire subcontinent as has been proposed for ancient India. Ancient Egypt and China took on horses and chariots without any break in the continuity of their civilizations. Certainly, ancient India, the largest urban civilization of its time in the world, could have taken on a new horse/chariot culture without having to change everything else as well. Therefore, even if horses or chariots came into India from the outside at some point in time, this is no reason to assume that the language and culture of the region had to change as well.

Second, a study of horse anatomy shows that there were two types of horses in the ancient world that we still find today. There is a south Asian and Arabian type that has seventeen ribs and a West and Central Asian horse that has eighteen ribs. The Rig Vedic horse, as described in the Ashvamedha or horse-sacrifice of the Rig-Veda has thirty-four ribs (seventeen times two for the right and left side). This shows that the Rig Vedic horse did not come from Central Asia but was the South Asian breed. The Rig Vedic horse is born of the ocean, which also indicates southern connections. The Yajur Veda ends with an invocation of the Divine horse that has the ocean as its belly (samudra udaram.). (Frawley.)

Horse bones have now been found in Harappan and pre-Harappan sites in India, not only in the north and west but also in the south and east, showing that the horse was known to the Harappan people, though it was probably mainly the south Asian horse. At the same time, the horse evidence required to prove the Aryan invasion/migration theory is also lacking. We do not find any significant evidence of horses coming into India around 1500 BCE in the form of horse remains, horse

encampments or horse images. If the Aryans came with the horse around 1500 BCE, such remains would be dramatic. There is no archaeological trail of horse bones into India around 1500 BCE. If the horse were indigenous to India, on the other hand, there would not be dramatic horse remains at one level as opposed to another. So far there are no dramatic horse finds at any level. Even in the Bactria and Margiana Archaeological Complex, which is supposed to be horse rich and a staging area of successive Indo-Aryan migrations/invasions into India, not a single horse bone has been found yet. This means that other areas supposedly rich in horses do not exhibit significant horse remains either.

Moreover, there are many equus bones found in ancient India, particularly the onager (*Equus hemionus*), which is native to Kachchh in Gujarat. There is evidence that the onager was used to draw chariots or battle cars in ancient Sumeria and was later replaced by the stronger and faster horse. The same thing probably occurred in India. It is also likely that the Vedic people did not discriminate between the different equus animals as strictly as we do the true horse from other breeds. This means that the Rig Vedic horse (*ashva*) could have, at least in the beginning, been an onager, which explains its oceanic connections as its native region of Kachchh is along the sea in what would have been the delta of the Sarasvati River. (Frawley.)

In this overall argument over horse it should be noted that the Vedas may actually be talking about celestial horse and not earthly horse. The celestial horse is the Pegasus constellation, which was earlier known by the symbol “top of foot of Kalan” (refer to jyotish wheel table) in the “Kalan- Scheme” of visualisation of sky-map. The old Kalan-sky-map of moon-priests was replaced by new set of priests who were following sun calendar. Their star constellation symbols were different from those of earlier priests. That is the reason for appearance of horse in later day period. Mere change of moon calendar into solar calendar should not be construed as invasion by Aryans. Definitely there is a change from old constellation symbol to new symbols, that should not be taken as an important evidence, as taken by Aryan invasion theorists. Further David Frawley states that the Rig-Vedic horse is born out of ocean and has ocean as its belly. This statement coincides very well with the celestial horse Pegasus. If you refer to sky-map, below the belly of the Pegasus there is a great fish, which is supposed to be swimming in a great ocean. The final conclusion is that the concept of horse in Veda perfectly fits celestial horse and not earthly horse.

Prajapathi

Similar to Indra, Prajapathi is another controversial figure, whose identity could not be established properly. Prajapathi was closely attached with Rohini star. Later, Prajapathi was dethroned; because he was accused of having sexual relationship with his daughter Rohini. He was beheaded by Rudra, his own son, who was born out of that incestuous relationship. Historians have interpreted this story as a creation story. But in reality it is an astronomical story to remember a calendar event. Prajapathi was the bull, the Auriga constellation and is closely related to Aldebaran (Rohini). Prajapathi was the principal star (Indra) to mark the beginning of the year. He was the first Indra of Rig Veda. But later he was dethroned because of changes in heliacal risings. This event has been morphed into a mythological story.

Pushan

Pushan is the Hindu of meeting. Pushan was responsible for marriages, journeys, roads, and the feeding of cattle. He was a psycho pomp, conducting souls to the other world. He protected travellers from bandits and wild beasts, and protected men from being exploited by other men. He was a supportive guide, a "good" god, leading his adherents towards rich pastures and wealth. He carried a golden lance, a symbol of activity. In Puranas he is said to be one of the twelve sons of Aditi. Pushan is praised in eight hymns in the Rigveda. Some of these hymns appeal to him to guard livestock and find lost livestock. His chariot is pulled by goats. Sometimes he is described as driving the Sun in its course across the sky. His name in Sanskrit means "he who causes people to thrive". He seems to represent the sun as a guardian of flocks and herds.

Pushan could be best remembered by the description that his chariot is drawn by a Ram. As said earlier all the mythological stories could be best understood by analysing the astronomical basis behind that story. If you refer to sky map it can be seen that Ram constellation is pulling the chariot (fish constellation) behind it. This may be the reason for the description that he drives the sun in its course across the sky. Further, it should be noted that the Ram constellation and Pisces (Pushan star in jyotisha Vedanga) appears just before rising of sun at early morning. This could be the reason for the story that he is the driver to sun.

List of abbreviations used in this book

A.D	Anno Domini: The year of the lord
B.C	Before Christ
BMAC	Bactria Margiana archaeological complex
C.A	Circa: means around the year.
HGP	Human Genome Project
IE	Indo-Europeans
IVC	Indus Valley Civilisation
PIE	Proto Indo Europeans
PCT	Palaeolithic Continuity theory
Potteries	OCP—ochre coloured potteries NBP----northern black polished ware PGW---painted grey ware culture BRW—black and red ware culture


GLOSSARY

- 1 Allegory Allegory is a figurative sentence or discourse, in which the principal subject is described by another subject resembling it in its properties and circumstances. The real subject is thus kept out of view, and we are left to collect the intentions of the writer or speaker by the resemblance of the secondary to the primary subject. / Anything which represents by suggestive resemblance; an emblem. Or / (Painting and Sculpture.)/ A figure representation which has a meaning beyond notion directly conveyed by the object painted or sculptured.
- 2 Allograph Allograph is the variation in how letters and other graphemes are written. The letter "a", for example, has two common forms (glyphs) in different typefaces. (Example typeface allograph: a /ɑ) (These two glyphs form the allograph of letter "A".)
- 3 Anno Domini Anno domini (A.D): The term Anno Domini is Medieval Latin, translated as in the year of our Lord). It is sometimes specified more fully as Anno Domini Nostri Iesu (Jesu) Christi ("In the Year of Our Lord Jesus Christ").
- 4 Archaeogenetics A term coined by Colin Renfrew, refers to the application of the techniques of molecular population genetics to the study of the human

- past. This can involve the analysis of DNA recovered from archaeological remains, i.e. ancient DNA; the analysis of DNA from modern populations (including humans and domestic plant and animal species).
- 5 BCE/CE/BC Common Era (also known as Christian era) is a designation for the period of time beginning with year 1 of the Gregorian calendar. Both the expressions are abbreviated CE (Christian era is also abbreviated AD, however), and earlier dates are designated BCE, short for "Before the Common Era", "Before the Christian Era". The numbering of years is identical to the numbering in the Anno Domini system, neither system using a year zero
 - 6 Centum group languages These are two groups of IE languages. The first group is the one in which "hundred (100)" is pronounced as "centum" and the other group is "satem" group of languages. In the second group of IE languages, "100" is pronounced as "satem" (satham). The European languages fall under the "centum" category, and Iranian and Indian languages fall under the "satem" category.
 - 7 Circa (Often abbreviated c., Ca, ca or cca. and sometimes italicized to show it is Latin) means "about" or "around". It is widely used in genealogy and historical writing, when the dates of events are approximately known.
 - 8 Chalcolithic age Asian archaeologists use this term to indicate the "copper- stone age", whereas European archaeologists use the common term "copper age". In this book the term copper age is being preferably used over the term chalcolithic age.
 - 9 Ecliptic The ecliptic is the apparent path that the Sun traces out in the sky during the year, appearing to move eastwards on an imaginary spherical surface, the celestial sphere, relative to the (almost) fixed stars. More accurately, it is the intersection of the celestial sphere with the ecliptic plane, which is the geometric plane containing the mean orbit of the Earth around the Sun. The name ecliptic arises because eclipses occur when the full or new Moon is very close to this path of the Sun.
 - 10 Eteocretan "Eteocretan" means "True Cretan people", the original inhabitant of the island of Crete.
 - 11 Heliacal rising See the detailed discussion under the heading Astronomy and calendar.
 - 12 Kurgan The word kurgan is of Turkic origin used in Russian language means mound.
 - 13 Logograms Logograms are commonly known also as "ideograms" or "hieroglyphics", which can also be called "hieroglyphs". Strictly speaking, however, ideograms represent ideas directly rather than words and morphemes.
Since logograms are visual symbols representing words rather than the sounds that make up the word, it is relatively easier to remember or guess the sound of alphabetic written words, while it might be relatively easier to remember or guess the meaning of logograms. Another feature

of logograms is that a single logogram may be used by a plurality of languages to represent words with similar meanings.

- 14 Megaliths The word megalith comes from the Ancient Greek *megas* meaning great, and *lithos* meaning stone. "Megalith" also denotes an item consisting of rock(s) hewn in definite shapes for special purposes. It has been used to describe buildings built by people from many parts of the world living in many different periods. A variety of large stones are seen as megaliths. The construction of these structures took place mainly in the Neolithic (though earlier Mesolithic examples are known) and continued into the Chalcolithic and Bronze Age.
- 15 Old Europe Old Europe is a term coined by archaeologist Marija Gimbutas to describe what she perceived as a relatively homogeneous and widespread pre-Indo-European Neolithic culture in Europe, particularly in the Balkans. In her major work, *The Goddesses and Gods of Old Europe: 6500–3500 B.C.* (1982), she refers to these Neolithic cultures as Old Europe. Archaeologists and ethnographers working within her framework believe that the evidence points to migrations of the peoples who spoke Indo-European languages at the beginning of the Bronze age (the Kurgan hypothesis). For this reason, Gimbutas and her associates regard the terms Neolithic Europe, Old Europe, and Pre-Indo-European as synonymous.
- 16 Panchanga Pechanga means – (Panch: five, Anga: parts) i.e. the calendar made of five parts; they are, Year, Day, Nakshatra, Raahu kalam (good time) and kuligai. (Bad time)
- 17 Pantheon Means religion marked by group of gods, not a single god. (Polytheistic religion)
- 18 Philology Philology is the word derived from the Greek word “*philos*” meaning "loved, beloved, dear, friend" and *logos* "word, is a branch of the human sciences dealing with language and literature, specifically a literary canon, combining aspects of grammar, rhetoric, historical linguistics (etymology and language change), interpretation of authors, textual criticism and the critical traditions associated with a given language.
- 19 Pithoi Pithoi are earthen jars found in Cretan palaces, Arthur Evans says that pithoi were used for storage of grains, but Wunderlich says they were used for keeping mummies.
- 20 Pontic region The Greek name for “Black Sea” is “Euxine Pontus”. From this root word only the other words like “Pontic Mountain” and “Pontic region” are derived. Pontic region is the area located around Black Sea in northeast Asia Minor and the area along the north-eastern coast of the Black Sea.
- 21 Precession (astronomy) In astronomy, precession refers to a gravity-induced slow but continuous change in earth’s rotational axis or orbital path. Which, like

- a wobbling top, traces out a conical shape in a cycle of approximately 26,000 years (called a great or Platonic year in astrology).
- 22 Rebus Rebus is the word derived from Latin meaning "by things". It is a kind of word puzzle that uses pictures to represent words or parts of words. For example: The term rebus also refers to the use of a pictogram to represent a syllabic sound. This adapts pictograms into phonograms. A precursor to the development of the alphabet, this process represents one of the most important developments of writing. Fully developed hieroglyphs read in rebus fashion were in use at Abydos in Egypt as early as 3400 BC
- H +  =
 Hear.
- 23 Rigel Star in Orion constellation.
- 24 Satem group of languages See "centum" group of languages.
- 25 Steppe The word steppe summarizes the vast flat grass lands stretching from north of the Black Sea as far as the east of the Caspian, from central Ukraine across the Southern and Volga Federal Districts of Russia to western Kazakhstan, forming part of the larger Eurasian steppe, adjacent to the Kazakh steppe to the east. The area corresponds to Scythia and Sarmatia of Classical antiquity.
- 26 Theocratic Government Means government controlled by the priests and religious laws. (Theocracy)
- 27 Turan Basin Turan Basin is the area enclosing Northern Afghanistan, North-eastern Iran and Southern Turkmenistan. Turan is the ancient Iranian name for central Asia, literally meaning "The land of the Tur". The modern words "Turk and Turkish" emerge from this root word.
- 28 Vasus There are eight Vasus (gods of abundance). They are as following, Agni(fire),Prithvi (earth), Vayu (wind), Antariksha (atmosphere), Aditya (Eternal), Dyaus (sky), Chandramas (moon-Soma) and Nakstrani (star-Dhuruva)

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